# UNDERGRADUATE CATALOG

2024/2025

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# UNIVERSITY OF MARYLAND CATALOG

The University of Maryland, College Park is the state's flagship university and one of the nation's preeminent public research universities. A global leader in research, entrepreneurship and innovation, the university is home to more than 40,700 students, 14,000 faculty and staff, and nearly 400,000 alumni all dedicated to the pursuit of Fearless Ideas. Located just outside Washington, D.C., we discover and share new knowledge every day through our renowned research enterprise and programs in academics, the arts and athletics. And we are committed to social entrepreneurship as the nation’s first “Do Good” campus.

# ABOUT THE UNIVERSITY


- Academic Calendars (p. 11)
- Accreditation and Authorization (p. 13)
- University Administration and Deans (p. 14)

# ACADEMIC CALENDARS

All undergraduate programs, and most graduate programs, follow the semester calendar. Some graduate programs follow the 12-week term calendar. Consult the individual department or program for the appropriate calendar to use. For current year academic deadlines and other scheduling information, see Academic Deadlines (https://www.registrar.umd.edu/calendars/).


- Semester Calendar (p. 11)
- 12-Week Calendar (p. 11)


## Semester Calendar 2024-2025

### Fall Semester | 2024

| Event | Date |
|---|---|
| First Day of Classes | August 26 (Monday) |
| Labor Day | September 2 (Monday) |
| Thanksgiving Recess | November 27-December 1 (Wednesday-Sunday) |
| Last Day of Classes | December 9 (Monday) |
| Reading Day | December 10 (Tuesday) |
| Final Exams | December 11-17 (Wednesday-Tuesday) |

### Winter Term | 2024-25

| Event | Date |
|---|---|
| Classes Begin | January 2 (Thursday) |
| Dr. Martin Luther King Holiday | January 20 (Monday) |
| Classes End | January 22 (Wednesday) |

### Spring Semester | 2025

| Event | Date |
|---|---|
| First Day of Classes | January 27 (Monday) |
| Spring Break | March 16-23 (Sunday-Sunday) |
| Last Day of Classes | May 13 (Tuesday) |
| Reading Day | May 14 (Wednesday) |
| Final Exams | May 15-21 (Thursday-Wednesday) |
| Commencement - Main Ceremony [1] | May 21 (Wednesday) |
| Commencement - College/ Department Ceremonies[1] | May 22 (Thursday) |
| Commencement - College/ Department Ceremonies[1] | May 23 (Friday) |

[1] See http://commencement.umd.edu for any updates.

### Summer Term | 2025

| Event | Date |
|---|---|
| Sessions I and I-A Begin | June 2 (Monday) |
| Juneteenth Holiday | June 19 (Thursday) |
| Session I-A Ends | June 20 (Friday) |
| Session I-B Begins | June 23 (Monday) |
| Independence Day Holiday | July 4 (Friday) |
| Sessions I and I-B End | July 11 (Friday) |
| Sessions II and II-C Begin | July 14 (Monday) |
| Session II-C Ends | August 1 (Friday) |
| Session II-D Begins | August 4 (Monday) |
| Sessions II and II-D End | August 22 (Friday) |

All dates are subject to change. Updates and future academic calendars can be viewed at http://provost.umd.edu/calendar/.

## 12-Week Term Calendar 2024-2025

### Fall Term | 2024

| Event | Date |
|---|---|
| First Day of Classes | August 26 (Monday) |
| Labor Day | September 2 (Monday) |
| Last Day of Classes | November 15 (Friday) |

### Winter Term | 2024-25

| Event | Date |
|---|---|
| First Day of Classes | November 25 (Monday) |
| Thanksgiving Recess | November 27 (Wednesday) - December 1 (Sunday) |
| Winter Break | December 25 - January 1 (Wednesday-Wednesday) |
| Dr. Martin Luther King Holiday | January 20 (Monday) |
| Last Day of Classes | February 19 (Wednesday) |

### Spring Term | 2025

| Event | Date |
|---|---|
| First Day of Classes | February 27 (Thursday) |
| Spring Break | March 16-23 (Sunday-Sunday) |
| Last Day of Classes | May 21 (Wednesday) |

# Summer Term | 2025

| Event | Date |
|---|---|
| First Day of Classes | June 2 (Monday) |
| Juneteenth Holiday | June 19 (Thursday) |
| Independence Day Holiday | July 4 (Friday) |
| Last Day of Classes | August 22 (Friday) |

All dates are subject to change. Updates and future academic calendars can be viewed at http://provost.umd.edu/calendar/.

# ACCREDITATION AND AUTHORIZATION

## Accreditation

The University of Maryland, College Park is accredited by the Middle States Commission on Higher Education (MSCHE), http://msche.org, under the authority of the U.S. Department of Education. Contact information:

Middle States Commission on Higher Education
1007 North Orange Street
4th Floor, MB #166
Wilmington, DE 19801

In addition, individual colleges, schools, and departments are accredited by a number of other groups:

### Accreditors Approved by the U.S. Secretary of Education

- Academy of Nutrition and Dietetics, Accreditation Council for Education in Nutrition and Dietetics
- American Psychological Association, Committee on Accreditation
- American Speech-Language-Hearing Association, Council on Academic Accreditation in Audiology and Speech-Language Pathology
- American Veterinary Medical Association, Council on Education
- Commission on English Language Program Accreditation
- Council on Education for Public Health
- National Association of Schools of Dance, Commission on Accreditation
- National Association of Schools of Music

### Other Accreditors

- American Association for Marriage and Family Therapy, Commission on Accreditation for Marriage and Family Therapy Education
- American Library Association (ALA)
- Association to Advance Collegiate Schools of Business (AACSB)
- Association for Advancing Quality in Educator Preparation (AAQEP)
- Accreditation Board of Engineering and Technology (ABET)
- Accrediting Council on Education on Journalism and Mass Communications (ACEJMC)
- Institute of Food Technologists
- Landscape Architecture Accreditation Board (LAAB)
- Maryland State Department of Education (MSDE)
- National Architectural Accrediting Board (NAAB)
- National Association of Schools of Public Affairs and Administration
- Planning Accreditation Board

### Evaluated Rather Than Accredited

- Maryland Sea Grant College (National Sea Grant Review Panel)
- Water Resources Center (United States Department of the Interior, U.S. Geological Survey)

For more information about Accreditation see http://provost.umd.edu/accreditation/.

## Authorization

The University of Maryland, College Park is authorized to operate in the state of Maryland by the Maryland Higher Education Commission (MHEC), http://mhec.maryland.gov. All degree and certificate programs are approved by MHEC and the University System of Maryland.

The University of Maryland, College Park is a participating institution in the National Council for State Authorization Reciprocity Agreements (NC-SARA), http://nc-sara.org, and is thereby authorized to offer online programs in all participating NC-SARA states and territories.

Individual programs operating in Washington, DC, have been authorized by the Higher Education Licensing Commission of Washington, DC, http://helc.osse.dc.gov. Pursuant to DC's Official Code, the District of Columbia Higher Education Licensure Commission is the agency of last resort in the grievance process.

The University of Maryland, College Park is authorized to operate in the state of Virginia by the State Council of Higher Education for Virginia (SCHEV), http://schev.edu. The university's main campus location in Virginia is as follows:

University of Maryland at National Landing
214 18th Street
Crystal City, VA 22202

# UNIVERSITY ADMINISTRATION AND DEANS

**Notice of Addendum:** The Vice President for Marketing and Communications appointment was updated via an addendum. To see the update, visit Addenda to This Catalog (p. 1110).

## Administration

President **Darryll J. Pines, Ph.D.**

Senior Vice President and Provost **Jennifer King Rice, Ph.D.**

Vice President and Chief Administrative Officer **Carlo Colella**

Vice President for Diversity and Inclusion **Georgina Dodge, Ph.D.**

Vice President for Finance and Chief Financial Officer **Gregory Oler**

Vice President for Information Technology and Chief Information Officer **Jeffrey Hollingsworth, Ph.D.**

Vice President for Research **Gregory Ball, Ph.D.**

Vice President for Student Affairs **Patty Perillo, Ph.D.**

Vice President for Legal Affairs and General Counsel **Jay Rosselló, J.D.**

Vice President for University Relations **James F. Harris**

Vice President for Marketing and Communications **Brian Ullmann**

## Deans

Dean of the College of Agriculture and Natural Resources **Craig Beyrouty, Ph.D.**

Dean of the School of Architecture, Planning, and Preservation **Dawn Jourdan, Esq., Ph.D.**

Dean of the College of Arts and Humanities **Stephanie Shonekan, Ph.D.**

Dean of the College of Behavioral and Social Sciences **Susan Rivera, Ph.D.**

Dean of the Robert H. Smith School of Business **Prabhudev Konana, Ph.D.**

Dean of the College of Computer, Mathematical, and Natural Sciences **Amitabh Varshney, Ph.D.**

Dean of the College of Education **Kimberly Griffin, Ph.D.**

Dean of the A. James Clark School of Engineering **Samuel Graham, Jr., Ph.D.**

Associate Provost and Dean of The Graduate School **Stephen Roth, Ph.D.**

Dean of the College of Information **Keith Marzullo, Ph.D.**

Dean of the Philip Merrill College of Journalism **Rafael Lorente**

Dean of the School of Public Health **Boris Lushniak, M.D.**

Dean of the School of Public Policy **Robert Orr, Ph.D.**

Associate Provost and Dean for Undergraduate Studies **William A. Cohen, Ph.D.**

Dean of University Libraries **Adriene Lim, Ph.D.**

Interim Associate Dean and Chair, Department of Veterinary Medicine, Maryland Campus **Xiaoping Zhu, Ph.D.**

## Division of Academic Affairs

1132 Thomas V. Miller, Jr. Administration Building
Phone: 301-405-5252
provost@umd.edu
http://provost.umd.edu

**Senior Vice President and Provost:** Jennifer King Rice, Ph.D.

The Senior Vice President and Provost is the chief academic officer of the university with responsibility for guiding the academic development and direction of the institution in accordance with the university's mission. As Senior Vice President, the Provost has budgetary responsibility for campus academic programs and resources and works directly with the President on campus-wide resource allocation. The Provost oversees the development, review, and implementation of all academic policies and regulations; consults closely with the University Senate and other faculty advisory groups on academic programs and policies; and serves as liaison with other university divisions in strategic and long-range planning. The deans of the 12 academic colleges and schools report to the Provost as do the deans for Undergraduate Studies, of the Graduate School, and of the University Libraries. The director of the Institute for Bioscience and Biotechnology Research and the Executive Director of the Universities at Shady Grove, both situated in Rockville, also report to the Provost. Other major academic administrative offices that report to the Provost include: Academic Planning and Programs; Center for Community Engagement; Diversity and Inclusion; Faculty Affairs; Enrollment Management; Institutional Research, Planning, and Assessment; International Affairs; Finance and Personnel; Records, Registration, and Extended Studies; the Teaching and Learning Transformation Center; and the Academy for Innovation and Entrepreneurship.

## Division of Administration

2119 Thomas V. Miller, Jr. Administration Building
Phone: 301-405-1105
VPadmin@umd.edu
http://admin.umd.edu

**Vice President and Chief Administrative Officer:** Carlo Colella

The Division of Administration is responsible for the university's 1,352-acre physical environment, including over 14 million square feet of facilities; and provides a variety of administrative services in support of the university's mission. More than 1,700 staff members ensure a safe, well-maintained and clean environment; facilitate planning for the future of the campus and manage construction; manage purchasing, support transportation demand management; manage the real estate needs of the university; and promote partnerships with surrounding communities.

Our operations include: Community Engagement; Environmental Safety, Sustainability & Risk; Facilities Management; Procurement & Business Services; Public Safety; Real Estate; Transportation Services; and University Human Resources.

Of particular interest to students are the services and resources offered by Public Safety; campus programs related to sustainability and climate action; and services offered by Transportation Services (parking, Shuttle-UM, and Smart Commute).

# Division of Information Technology

Phone: 301-405-1500
itsupport@umd.edu
https://it.umd.edu

**Vice President and Chief Information Officer:** Jeffrey K. Hollingsworth, Ph.D.

The Division of Information Technology (DIT) makes the learning, research, service, and administration of the University of Maryland better by enabling the effective use of technology in classrooms, laboratories, offices, and on the go. We are a unit of knowledgeable and diverse staff with skills in many disciplines that strives to build and maintain advanced, secure, and efficient information technology systems.

DIT proudly embraces our wide range of individual perspectives and experiences and highly values an open work environment that fosters the free exchange of ideas, mutual respect, and consideration for our differences.

# Division of Student Affairs

2108 Clarence M. Mitchell, Jr. Building
Phone: 301-314-8428
studentaffairs@umd.edu
http://studentaffairs.umd.edu

**Vice President for Student Affairs:** Patricia (Patty) Perillo, Ph.D.

The Office of the Vice President for Student Affairs provides administrative leadership for 16 departments which oversee student life: Accessibility & Disability Service; Adele H. Stamp Student Union; Conferences & Visitor Services; Counseling Center; Dean of Students Office; Development & External Relations; Dining Services; Diversity, Equity, & Inclusion; Fraternity & Sorority Life; Family Engagement; Resident Life; Residential Facilities; Student Conduct; University Career Center; University Health Center; University Recreation & Wellness.

This office serves as a point of contact for non-academic student services and concerns. In addition, the office provides support for the BETA Team, Student Success Initiative, Student Crisis Fund, and Omicron Delta Kappa.

# Division of University Relations

0132 Thomas V. Miller, Jr. Administration Building
Phone: 301-405-4680
http://urhome.umd.edu

**Vice President for University Relations:** Jim F. Harris

The Division of University Relations encompasses a variety of units whose shared mission is to advance the goals of the university through sustained philanthropy and meaningful engagement with the Maryland family and the greater community. Units of this division include: Development (including school-, college- and unit-based staff), Annual Giving, Gift Planning, Corporate and Foundation Relations, Alumni Relations, Special Events, Donor Relations and Stewardship, and the University of Maryland College Park Foundation. At its conclusion in December 2021, Fearless Ideas: The Campaign for Maryland raised more than $1.5 billion in private support for university priorities such as undergraduate scholarships, faculty support, innovative programs and campus facilities. Aligned with the university's current strategic plan, University Relations will move Fearlessly Forward, in pursuit of excellence and impact for the public good, empowering the next generation of leaders and global citizens to develop solutions to the grand challenges of our time.

# Office of Diversity and Inclusion

Phone: 301-405-2838
Fax: 301-314-9992
DiverseTerps@umd.edu
http://diversity.umd.edu

**Vice President for Diversity & Inclusion:** Georgina Dodge, Ph.D.

The Office of Diversity and Inclusion (ODI) provides leadership and expertise for helping the university achieve its diversity, equity and inclusion goals. ODI houses several units that offer support to students, including ADA Compliance, Bias Incident Support Services (BISS), Diversity Training & Education (including the Words of Engagement Intergroup Dialogue Program), the LGBTQ+ Equity Center, the Nyumburu Cultural Center, the Office of Multi-ethnic Student Education (OMSE) and TerrapinSTRONG. ODI also coordinates with the Diversity Officers and other partners across campus. Students may reach out to ODI at DiverseTerps@umd.edu for support or to be connected to resources.

For more information about ODI, please visit http://diversity.umd.edu.

# Office of the President

1101 Thomas V. Miller, Jr. Administration Building
Phone: 301-405-5803
Fax: 301-314-9560
president@umd.edu
http://president.umd.edu

**President:** Darryll J. Pines, Ph.D.

The president is the chief executive officer of the University of Maryland. Ten vice presidents, who report directly to the president, manage different divisions of the campus administration. The Department of Intercollegiate Athletics and the Maryland Fire and Rescue Institute report to the Office of the President. The University Senate, a representative legislative body of the university, advises the president on academic and other matters.

# Office of Undergraduate Studies

2110 Marie Mount Hall
Phone: 301-405-9363
ugst@umd.edu
http://ugst.umd.edu

**Associate Provost and Dean:** William Cohen, Ph.D.
**Director of Administration and External Relations:** Jacqueline Kautzer
**Associate Deans:** Douglas Roberts, Ph.D., Cynthia Kay Stevens, Ph.D., Lisa Kiely, Ph.D., Lawrence Clark, Ph.D.
**Assistant Deans:** Eric Van Johnson, Jamie Hoots, Alice Donlan

Through its many programs, the Office of Undergraduate Studies serves all undergraduate students at the university and the faculty and staff that support the undergraduate mission of the campus. The Office of Undergraduate Studies is the primary division at the University of Maryland responsible for leadership and oversight of undergraduate curricular and co-curricular education.

For more information about the programs in the Office of Undergraduate Studies, please see this section of the catalog (p. 512).

# The Graduate School

2123 Lee Building
7809 Regents Drive
Phone: 301-405-3644
gradschool@umd.edu
http://gradschool.umd.edu

**Associate Provost and Dean:** Steve Fetter, Ph.D. (through June 30, 2023)
**Associate Provost and Dean:** Stephen Roth, Ph.D. (effective July 1, 2023)

The Graduate School, under the leadership of its Dean, establishes and oversees procedures to enact policies and serves as an advocate for excellence in all aspects of graduate education. The Graduate School, on behalf of its Dean, officially admits all students into graduate degree programs and acts as the conferring body for all graduate degrees.

More information on the Graduate School can be found in the Graduate Catalog (https://academiccatalog.umd.edu/graduate/).

# University Senate

1100 Marie Mount Hall
Phone: 301-405-5805
senate-admin@umd.edu
http://senate.umd.edu

**Director:** Veronica Marin

The University Senate, an integral part of the university's system of shared governance, has representation from all members of the campus community: faculty, staff, undergraduate students, and graduate students. Participation in the Senate or any of its 10 Standing Committees is an honor and a responsibility.

The full Senate meets approximately nine times a year to consider matters of concern to the institution, including educational, budgetary, and personnel matters; campus-community matters; long-range plans; facilities; and faculty, staff, and student affairs. The Senate directly advises the President on academic programs, university policies, long-range plans, and plans of organization.

To become an undergraduate student Senator, students must be elected by other students in the advising college of their primary major or the Office of Undergraduate Studies in centralized, online elections. Elections are held every year during the spring semester. All students are also encouraged to participate in Senate standing committees, such as Student Affairs, Educational Affairs, and Campus Affairs that are responsible for making recommendations to the Senate. These committees draw membership from the campus community at large and cover every aspect of campus life and function. Details about the election and committee volunteer processes can be found at http://senate.umd.edu.

# UNDERGRADUATE CATALOG

Welcome to the University of Maryland Undergraduate Catalog. The Undergraduate Catalog provides information pertaining to undergraduate academic programs, including course descriptions and program requirements, and sets forth the university's academic, registration and graduation policies and regulations. A listing of University of Maryland policies and procedures is available at http://president.umd.edu/policies/. Program requirements contained in the Undergraduate Catalog supersede any information which may be contained in any bulletin of any school or department. This Undergraduate Catalog also contains hyperlinks to other informational resources at the University of Maryland. The information contained in these hyperlinks is provided as a convenience to the reader and is not part of the Undergraduate Catalog itself.

The provisions of the Undergraduate Catalog are not to be regarded as a contract between the student and the University of Maryland. The university reserves the right to change its policies, rules, regulations, requirements for graduation, course offerings, tuition, fees, other charges, or any other contents of this catalog at any time.

Changes are effected from time to time in the general policies, and academic and graduation requirements. The Undergraduate Catalog will be updated to reflect such changes, as appropriate, but updates may not appear immediately. There are established procedures for making changes that protect the institution's integrity and the individual student's interest and welfare. A curriculum or graduation requirement, when altered, is not normally retroactive unless the change is to the students' advantage and can be accommodated within the span of years normally required for graduation.

**Registration Guide:** The registration guide outlines registration dates and procedures, and provides information on deadlines, fees, and other student services at the university. The registration guide and schedule of classes are available at https://registrar.umd.edu.

# ADMISSIONS INFORMATION


- Office of Undergraduate Admissions (p. 18)
- Freshman Admission (p. 18)
- Transfer Admission (p. 19)
- International Student Admission (p. 20)
- Special Applicants (p. 21)
- Admission to Limited Enrollment Programs (LEP) (p. 22)
- Extended Studies (p. 22)
- Residency Information (p. 23)
- Readmission and Reinstatement (p. 23)


The University of Maryland (UMD) is a publicly-funded, land-grant institution and the flagship of the University System of Maryland. The university's mission statement expresses a commitment to achieving excellence as the state's primary center for research and graduate education and the institution of choice for undergraduate students of exceptional ability and promise. Consistent with this mission, UMD counts the diversity of its students among its greatest strengths and as an integral component of the educational process and a contributing factor to the academic excellence of the institution.

The undergraduate admission process, which reflects the university's educational mission, seeks to identify those applicants, who as individuals and as a group, will enrich and benefit from the campus learning environment, and thus benefit the entire student body. The process is structured to build entering classes of students whose varied backgrounds and experiences provide substantial evidence of their potential to:

- meet UMD's requirements for academic success,
- enrich the university as a diverse community,
- add new perspectives to UMD's curriculum and scholarly pursuits,
- develop personal skills, including leadership, self-confidence and intellectual engagement, and
- contribute to the intellectual, cultural, social and political life of the university, state and nation.

As the university must make fine distinctions among large numbers of highly qualified applicants, the ability to assess all information presented in the application consistently becomes increasingly important. Therefore, the university employs a rigorous review process that engages the expertise of professional educators in performing individualized and holistic evaluations of each application. Each applicant is assessed on the basis of achievements and potential in a broad range of academic categories, viewed in the context of the opportunities and challenges the applicant has faced. These categories include, but are not limited to:

- the strength of educational performance, as measured by the nature and rigor of high school curriculum and academic achievements,
- the potential for college success, as evidenced by performance on nationally normed standardized tests (if the applicant should choose to submit these scores),
- the potential to promote beneficial educational outcomes and to make a positive contribution to campus and community life, and
- persistence and commitment to educational excellence, as evidenced by demonstrated success in facing adversity and overcoming obstacles.

## Application Documents

In addition to the online application, a number of supporting materials are also required. This can include items such as letters of recommendation and official transcripts. For a complete list of required application materials and information on how to submit them, please visit http://go.umd.edu/AppChecklists/.

## Office of Undergraduate Admissions

Clarence M. Mitchell, Jr. Building
Ground Floor
7999 Regents Drive
College Park, MD 20742
Phone: 301-314-TERP (8377) or 1-800-422-5867
ApplyMaryland@umd.edu
http://admissions.umd.edu

**Assistant Vice President for Enrollment Management:** Shannon Gundy
**Director of Undergraduate Admissions:** James Massey, Jr.

The services offered by the Office of Undergraduate Admissions are designed to meet the individual needs of prospective students. The office provides general information about the University of Maryland through electronic communications, print materials, website, social media, visit programs, information sessions, campus tours and other personal interactions. Admissions staff evaluate undergraduate freshman and transfer applicants (both international and domestic) in order to shape the entering class of students.

## Freshman Admission

### Fall Semester Freshman Admission

The University of Maryland (UMD) strongly encourages all freshman applicants to apply by our November 1 early action deadline to ensure priority consideration for admission, merit scholarships and invitation to special programs. Admission to UMD is competitive. We typically receive over 58,000 applications for a fall freshman class of approximately 4,800. As a result, we are unable to offer admission to all students who have the ability to be academically successful at the university. A completed application includes the online application, official high school transcript(s), SAT or ACT scores (if the student indicates they would like their scores to be considered), essay, activities and awards list, school counselor and teacher recommendations and the application fee.

Applying by the November 1 early action deadline is encouraged. Please visit our undergraduate admissions website for updated deadline information (https://admissions.umd.edu/apply/application-deadlines/).

### Spring Semester Freshman Admission

Students may be admitted for the spring semester by applying directly for spring admission or by having their fall application identified for spring admission through the application review process (as a result of space limitations). A completed application includes the online application, official high school transcript(s), SAT or ACT scores (if the student indicates they would like their scores to be considered), essay and activities, school counselor and teacher recommendations and the application fee.

Please visit our undergraduate admissions website for updated deadline information (https://admissions.umd.edu/apply/application-deadlines/).

# Freshman Fall Admission Deadlines

- Early action deadline: November 1
- Regular deadline: January 20

# Financial Aid Applications

The University of Maryland (UMD) priority deadline for submitting the Free Application for Federal Student Aid (FAFSA) is January 1. Students seeking need-based financial assistance can complete the FAFSA prior to submitting their admission application. The FAFSA can be submitted as early as October 1 when it becomes available online. More information is available in our FAFSA FAQs (https://financialaid.umd.edu/resources-policies/fafsa-faqs/).

# Early Admission Options for High-Achieving High School Students

## Concurrent Enrollment

Talented high school seniors have the opportunity to enroll at UMD for two courses, or seven credits, each semester. Successful applicants will have pursued a rigorous high school program and will have indicated exceptional performance and ability achieved over time. To apply, students must submit the completed concurrent enrollment (https://admissions.umd.edu/apply/requirements/special-audiences/) application and fee, high school transcript(s) an essay explaining why they are interested in the program, a letter of recommendation from the high school and a letter of permission from the parents or guardians. Students must live within commuting distance. Tuition is assessed on a per-credit-hour basis. All mandatory fees apply in full.

## Summer Enrollment

High school students with a strong high school record may be considered for enrollment in courses during the summer preceding their junior or senior year. They must file an application for admission and submit an official high school transcript. Tuition is assessed on a per-credit-hour basis. All mandatory fees apply in full. For more information, students should visit the Extended Studies (https://oes.umd.edu/current-incoming-former-umd-students/summer-session/) website.

## Early Admission

Although UMD generally requires applicants to earn a high school diploma prior to their first full-time registration, the university will admit a limited number of well-qualified students without high school diplomas. Successful applicants will have pursued a rigorous high school program and will have indicated exceptional performance and ability achieved over time. Students must be within two credits of high school graduation and have the commitment of the high school to award a diploma after successful completion of the freshman year at UMD. To apply, students must submit the completed application and fee, high school transcript(s), SAT or ACT results (if the student indicates they would like their scores to be considered), an essay explaining how they will benefit from the program, a letter of permission from the parents or guardians and a letter of support from the high school which details the school's agreement to award the high school diploma. Early admission students are eligible for on-campus housing, scholarships based on academic achievement, the Honors College, College Park Scholars and other living-learning programs. Early application is strongly advised.

# High School Equivalency Examination (GED)

Maryland residents who are at least 16 years of age and who have not received a high school diploma may be considered for admission provided they have earned the high school General Education Equivalency (GED) certificate. In order to be considered for admission, the applicant must submit a completed application (including SAT scores if the applicant has been out of high school for less than three years and chooses to submit them) and present an above average total score as well as above average scores on each of the five parts of the test.

# Non-Accredited/Non-Approved High School

Students from non-accredited/non-approved high schools who seek admission to the University of Maryland should contact the Office of Undergraduate Admissions for additional information.

# Home-Schooled Students

Home-schooled applicants should meet the same minimum high school course requirements expected of all applicants. Additional information from home-schooled students is required in the following areas of the application:

***Transcript:*** The transcript(s) should provide course descriptions, books used, methods of evaluation and the grades received, as well as a statement providing general information about the home-school curriculum. If college-level courses have been taken simultaneously, an official college transcript should be included with the application.

***Letters of Recommendation:*** UMD requires two recommendations from all freshman applicants. In the case of home-schooled students, these recommendations should be provided by:

- an individual acting in a supervisory or evaluative capacity with regard to the student's curriculum and
- a teacher in any setting (home-school program, community college course, etc.).

# Prior Learning Credit

UMD awards credit for Advanced Placement (AP), International Baccalaureate (IB) and Advanced Level (A-Level)/Advanced Subsidiary Level (AS-Level) exams when an appropriate score has been achieved. It is important to note that not all exams are awarded credit. All UMD departments reserve the right to re-evaluate the content of exams and to change the assignment of credit and course equivalencies. There are other types of college-level exams that may be awarded credit on a case-by-case basis. These include the Caribbean Advanced Proficiency Exam (CAPE) or Abitur. For additional information on the transferability of these exams, please see the Prior Learning Credit (https://academiccatalog.umd.edu/undergraduate/registration-academic-requirements-regulations/prior-learning/) section of this catalog.

# Transfer Admission

Admission to the University of Maryland (UMD) is competitive. Students are encouraged to read the Admission Review Factors and Process (https://admissions.umd.edu/apply/admission-review-process-factors/) for more information regarding our admission process.

Admission is based on the overall strength of the student's academic performance and is assessed through a holistic review.

In accordance with the Maryland Higher Education Commission and Board of Regents transfer policies, certain applicants from Maryland public institutions are given special consideration and are admitted when space is available.

## Transfer Applicant Requirements

The Admission Committee considers the student's academic record and grades received in all college-level courses. Students are expected to have completed English Composition (the equivalent of UMD's ENGL101 course) and college-level mathematics (the equivalent of UMD's MATH107 course or equivalent to the general education fundamental mathematics requirement) for best consideration in the review process.

High school graduates who have completed at least 12 semester hours or 18 quarter hours after high school graduation (or after completion of high school equivalency) at a regionally accredited college or university should apply as transfer applicants. Students who have completed fewer than 30 semester or 45 quarter hours (after high school graduation) at the time of application, are expected to submit high school records and standardized test scores (optional) for review.

When an applicant has attended more than one institution, a cumulative average for all previous college work attempted will be computed and included in the review process. To be considered, coursework must have been completed at a regionally accredited college or university. Due to space limitations, we are unable to offer admission to all students who have the ability to be academically successful at UMD. Please review the Transfer Applicant Requirements (https://admissions.umd.edu/apply/admission-requirements/transfer-applicant-requirements/) page for additional information.

## Application Deadline Dates

| Semester | Date |
|---|---|
| Spring Early Action | August 1 |
| Spring Regular | November 15 |
| Fall Early Action | March 1 |
| Fall Regular | June 1 |

## Transfer from Maryland Public Institutions

Currently, applicants who have attended Maryland public institutions may be admitted in accordance with the criteria previously outlined. The university subscribes to the policies set forth in the Maryland Higher Education Commission (MHEC) and Board of Regents transfer policies. When the number of students desiring admission exceeds the number that can be accommodated in a particular professional or specialized program, admission will be based on criteria developed by the university to select the best-qualified students.

Articulated transfer programs are available at each Maryland public community college. An articulated transfer program is a list of courses that best prepare applicants for a particular course of study at UMD. Applicants who take appropriate courses specified in the articulated program and earn acceptable grades are guaranteed transfer with no loss of credit. Articulated transfer programs help students plan their new programs after changing career objectives. More information about the articulation system (ARTSYS) (http://artsys.usmd.edu/) is available online. Applicants are encouraged to follow articulated programs to enhance their transition to UMD.

## Transfer Credit

For more information on receiving transfer credit at UMD, please see the Transfer Credit (p. 84) section of this catalog.

# International Student Admission

The University of Maryland (UMD) seeks to enroll international students who demonstrate strong academic performance with records suggesting potential for success at the university. Admission to UMD is competitive. Typically, admission is offered to applicants whose academic credentials indicate marks of "very good" to "excellent". Due to space limitations and the competitive nature of undergraduate admission at UMD, an international applicant should submit a complete application as early as possible, and always before the deadlines listed in this section. Evaluation of an applicant's credentials will take place only after all application materials are received.

Students who are non-U.S. citizens or non-permanent U.S. residents should apply as international applicants. Please refer to the Office of Undergraduate Admissions website for more information regarding international application requirements (https://admissions.umd.edu/apply/international-applicants/).

## Freshman Admission - International

You are considered a freshman applicant if you have completed fewer than 12 semester hours of university-level credit beyond secondary school at the time of applying to UMD. Successful freshman applicants demonstrate satisfactory completion of diverse college-preparatory subjects in secondary school, proficiency in English and evidence of sufficient funds to cover all expenses. Due to space limitations, we are unable to offer admission to all students who have the ability to be academically successful at UMD.

The early action deadline for fall admission is November 1 and for spring admission the deadline is August 1. Applications are considered complete when the online application and all required documents, including English language proficiency test scores, have been submitted. Students are strongly encouraged to complete their application by the early action deadline (https://www.admissions.umd.edu/apply/application-deadlines/) when applicable.

For a listing of required documents, please review the International Application Checklist (https://admissions.umd.edu/apply/international-applicants/#checklist).

## Transfer Admission - International

You are considered a transfer applicant if you have graduated from high school/secondary school and subsequently completed a minimum of 12 semester hours or 18 quarter hours during a regular term (excluding summer school) at a regionally accredited college or university. Students who have completed fewer than 30 semester or 45 quarter hours are expected to submit high school/secondary school records and SAT and/or ACT scores for review. (Please note that UMD is currently test optional. This means that students applying between now and Fall 2025 will not be required to submit standardized test scores. Students can decide whether or not to include SAT/ACT scores with their application.) If you've attended more than one institution, a cumulative average for all previous college/university work attempted will be computed and included in the

review process. To be considered, coursework must have been completed at a regionally accredited college or university.

Admission is competitive. Successful transfer applicants demonstrate better than average grades in strong academic courses, proficiency in English and evidence of sufficient funds to cover all expenses. Due to space limitation, we are unable to offer admission to all students who have the ability to be academically successful at UMD.

The early action deadline for fall admission is March 1 and for spring admission the deadline is August 1. Applications are considered complete when the online application and all required documents have been submitted. Students are strongly encouraged to complete their applications by the early action deadline (https://www.admissions.umd.edu/apply/application-deadlines/) when applicable.

For a listing of required documents, please review the International Application Checklist (https://admissions.umd.edu/apply/international-applicants/#checklist).

# Non-U.S. Academic Credentials

UMD requires all students with non-U.S. academic credentials to submit additional information. Depending on your application type and the associated requirements, you may need to submit some or all of the following:

**High school/secondary credentials -**

- Official copies of your high school transcript(s), from each institution you've attended, sent in the native language along with a certified English translation.
- Official results and certificates of completion from national secondary school examinations such as GCSE/GCE (where appropriate, in addition to official transcripts).

**Post-secondary/university credentials -**

- Official copies of your college transcript(s), from each institution you've attended, sent in the native language along with a certified English translation.
- A third-party academic evaluation from one of the approved evaluators.

Review the International Application Checklist (https://admissions.umd.edu/apply/international-applicants/#checklist) for specific details on the required materials for freshman and transfer applications, as well as information on approved third-party evaluation services.

# English Proficiency

Non-native English speakers (regardless of citizenship) who seek admission to UMD must verify their proficiency in English by taking and submitting an official score report from one of the following English proficiency exams: Duolingo English Test (DET), International English Language Test System (IELTS) or Test of English as a Foreign Language (TOEFL). While scores from one of these exams are required to satisfy proficiency in English, the Office of Undergraduate Admissions will conduct a full file review considering all application materials submitted to make a determination about the student's level of English proficiency. Please refer to the Office of Undergraduate Admissions website for more information regarding English proficiency requirements (https://www.admissions.umd.edu/apply/admission-requirements/international-applicant-requirements/english-language-proficiency/).

# Visa Requirements

**Admitted Students Residing Outside of the United States:** To enter the U.S., international students residing abroad will need a valid passport from their country of citizenship and a visa from the U.S. Consulate. To obtain a visa for the purposes of studying in the U.S., students **must first be admitted to the university and confirm their enrollment.** Admitted students who have submitted proof of funding to cover the cost of their program of study at UMD will be issued the Certificate of Eligibility Form (I-20) to obtain an F-1 Visa (Academic Student). Admitted students who are sponsored by agencies, foundations or their home government, or are participating in an established exchange program may be issued the Certificate of Eligibility for Exchange Visitor Status (DS-2019) to obtain a J-1 visa.

**Admitted Students Currently Residing in the United States:** Admitted students currently holding F-1 Student or J-1 Exchange Visitor status need to submit a photocopy of their I-94 Arrival/Departure Record, visa stamp and current I-20 or DS-2019 form, along with proof of having sufficient funds to cover the cost of their study. Students holding another type of non-immigrant status need to submit a photocopy of their I-94 Arrival/Departure Record and visa stamp, and must indicate if they intend to change to F-1 Student or J-1 Exchange Visitor status. Upon admission and submission of the appropriate financial support documentation, the university will then issue the appropriate Certificate of Eligibility Form (I-20 or DS-2019) to the student.

For more information, please visit the Office of International Student and Scholar Services (https://marylandglobal.umd.edu/global-learning-all/international-students-scholars/) website.

# International External Exam

UMD awards credit for some Advanced Level/Advanced Subsidiary Level (A-Level/AS-Level) Exams taken through Cambridge International Exams (CIE) or other recognized organizations. There are other types of college-level exams that may be awarded credit on a case-by-case basis. For additional information on the transferability of these exams, please see the Prior Learning Credit (https://academiccatalog.umd.edu/undergraduate/registration-academic-requirements-regulations/prior-learning/) section of this catalog.

# Special Applicants

The University of Maryland (UMD) acknowledges that not all students fit into the freshman or transfer applicant categories. There are several unique application processes for such audiences. To learn more about the processes below, please visit the Office of Undergraduate Admissions Special Audiences (https://admissions.umd.edu/persona/prospective-students/#special-audiences) page.

# Golden Identification (Golden ID) Program

The Golden ID Program allows eligible senior citizens to take advantage of the wide variety of course offerings at the university. To be eligible to participate, the individual must be 60 years of age or older, a legal resident of the state of Maryland and retired (not engaged in gainful employment for more than 20 hours a week).

To participate in the Golden ID program, students must submit an undergraduate admissions application. If admitted to the university,

students can then register on a space-available basis for credit courses as a regular or special student in any session. Students must pay an administrative fee for each semester registered.

## Non-Degree Seeking Students

Students interested in taking courses at UMD without pursuing a degree must apply for admission as non-degree seeking students using the undergraduate admissions transfer application (https://admissions.umd.edu/apply/application-checklists/transfer-application-checklist/).

Non-degree seeking students who've already received a baccalaureate degree may enroll in undergraduate courses for which they possess the necessary prerequisites, but may not enroll in courses restricted to graduate students only. Credits earned while enrolled as a non-degree seeking student cannot be applied to a graduate program at a later date. Students who wish to take courses at the graduate level (600 and above) must contact the Graduate School for information concerning admission requirements for Advanced Special Student status.

For more information on required application materials, please visit the Office of Undergraduate Admissions Special Audiences (https://admissions.umd.edu/persona/prospective-students/#special-audiences) page.

## Returning Students

Applicants who have not attended school for more than five years should contact the Student Success Office (http://studentsuccess.umd.edu/).

Students returning to UMD after a separation of five calendar years may petition the appropriate dean to have a number of grades and credits from courses previously taken at UMD removed from the calculation of their cumulative grade point averages and from the credits applied toward graduation requirements. See information under Registration (p. 80) and Academic Records and Regulations (p. 69).

## Special Freshman Audiences

For information about early admission options, high school equivalency evaluation, home-schooled students and prior learning credits, please visit the Freshman Admission (https://academiccatalog.umd.edu/undergraduate/requirements-application-procedures/freshman-admission/) section.

## U.S. Veterans

First and foremost, UMD thanks all veterans for their service. UMD considers a veteran any individual who is currently enlisted or has served in the U.S. armed forces or one of its reserve units. As a Principles of Excellence Program (https://www.va.gov/education/choosing-a-school/principles-of-excellence/) institution, we are committed to helping veterans continue their education. For more information on required application materials, please visit the Office of Undergraduate Admissions Special Audiences (https://admissions.umd.edu/persona/prospective-students/#special-audiences) page.

Veterans can also contact the University of Maryland Veterans Certification Services at 301-314-8239 for more information on the university's veteran services.

# Admission to Limited Enrollment Programs (LEP)

The University of Maryland (UMD) has taken steps to limit enrollment in certain majors in order to maintain high-quality programs. These majors, which are called Limited Enrollment Programs or LEPs, include biochemistry, biological sciences, business, chemistry, communication, computer science, criminology and criminal justice, engineering, environmental science (biodiversity and conservation biology), immersive media design, neuroscience and psychology. Students are encouraged to visit the Office of Undergraduate Admissions website for additional LEP information (https://admissions.umd.edu/explore/limited-enrollment-programs/) or they can contact the office at 301-314-TERP (8377) or lep@umd.edu.

## Freshmen

Admission of new freshmen to some LEPs is highly selective. LEPs with highly selective admission for freshmen include biochemistry, biological sciences, business, chemistry, computer science, engineering, immersive media design and neuroscience. Freshman applicants interested in an LEP are encouraged to apply by the early action deadline, as space is limited for these programs. Freshmen who are directly admitted to an LEP will be subject to a performance review when they complete 45 college credits. The review varies from program to program, but always includes satisfactory performance in a set of appropriate courses. Students not passing the review will be required to choose another major. See the academic program description for specific details.

Freshmen not directly admitted to an LEP will be assigned to Letters and Sciences, where they will work with an advisor to meet the gateway requirements outlined for their particular program. Students are not guaranteed admission to an LEP at a later date. See the following section on LEP transfer admission for further details about this option.

## Second Major

Enrolled students interested in adding an LEP as a second major should see Degree Requirements (p. 75).

## Transfer Students

Prospective transfer students and current UMD students wishing to change their major to an LEP must meet a set of gateway courses with minimum grades and obtain the required GPA in order to be considered for admission to the program (space limitations may apply). Additional information for each of the LEPs may be found at http://lep.umd.edu.

Transfer students who are not directly admitted to an LEP upon application to the university will be assigned to Letters and Sciences. Those with fewer than 60 credits will be assigned to Letters and Sciences and will be allowed the opportunity to meet the gateway requirements. Students with more than 60 credits will be admitted to an interim advising program in Letters and Sciences where they will be advised regarding their qualifications for the LEP and, in some cases, students will need to choose another major.

# Extended Studies

**SUMMER, WINTER, AND UNDERGRADUATE PROGRAMS, PROFESSIONAL AND CONTINUING EDUCATION**

2205 Artemesia Building

exst@umd.edu
http://exst.umd.edu

**Director, Programs & Marketing/Communication:** Terrie Hruzd

Extended Studies partners with University of Maryland (UMD) academic units to provide administrative services for credit and non-credit initiatives that target a diverse range of students at the pre-college, undergraduate, graduate, and professional level. Programs include Summer, Winter, and Undergraduate Programs, and Professional and Continuing Education.

**Summer and Winter Sessions** serve current and incoming UMD students, visiting students from other two- and four-year institutions, professionals, and lifelong learners. Both sessions offer courses that meet in-person or online, providing students with flexibility and convenience to make progress towards graduation. Summer Session includes **Terp Young Scholars**, a three-week pre-college experience that targets academically talented high school students.

**Undergraduate Programs** include Freshmen Connection, Undergraduate Programs at the Universities at Shady Grove, and Undergraduate Programs at University System of Maryland at Southern Maryland. **Freshmen Connection** serves spring-admitted freshmen who start earning UMD credits in the fall semester and get on track to graduate in four years. With **Undergraduate Programs at Shady Grove** and **Southern Maryland**, students in their final two years earn a UMD undergraduate degree in a convenient learning environment.

**Professional and Continuing Education** includes Graduate, Post-Baccalaureate, Continuing Education, and Executive Education Programs, and MOOCs (Massive Open Online Courses). **Graduate Programs** are crafted with expertise, innovation, and convenience to advance professional career goals. **Post-Baccalaureate Programs** prepare students for graduate or professional school training. **Continuing Education Programs** offer non-credit learning opportunities through UMD's Open Learning Catalog. **Executive Education Programs** serve managers, business leaders, and executives with customized training programs. **UMD MOOCs** utilize UMD's expertise to offer online programs that expand knowledge and career opportunities.

# Residency Information

**Residency Reclassification Services**
1130 Clarence M. Mitchell, Jr. Building
Phone: 301-314-9596
Fax: 301-314-7915
resclass@umd.edu
http://registrar.umd.edu/residency-reclassification/

Petitions, related documents and questions concerning the Board of Regents Policy on Student Classification for Admission and Tuition Purposes should be directed to Residency Reclassification Services in the Office of the University Registrar.

**Determination of In-State Status for Admission and Tuition Purposes: See** https://www.usmd.edu/regents/bylaws/SectionVIII/VIII-2.70.pdf **for the complete text of this policy.**

An initial determination of in-state status will be made by the Office of Undergraduate Admissions at the time a student's application for admission is considered. The determination made at that time, and any determination made thereafter, shall prevail in each semester, and if, the students makes a request to change it. Students may request to change their classification by submitting a timely petition to Residency Reclassification Services in the Office of the University Registrar. Determinations are based on the requirements of the residency policy. The deadline for submitting a complete petition, along with all supporting documents, is the first day of the semester in which the student wishes to be classified as in-state. No requests for retroactive change in status will be accepted. A student may only file a Petition for Change in Residency Classification for a current semester according to university established deadlines. In addition, a determination of in-state status is only valid for a term in which a student is registered. Requests for change in residency classification will not be accepted if a student is not registered for that term.

Once a petition has been filed, it may take up to six weeks for an initial decision. During this period of time, or any further period of time required by the university, any fees and charges based on the previous determination must be paid. The student is solely responsible for any late charges incurred by the residency process. If the determination is changed, any excess fees and charges will be refunded. All correspondence from Residency Reclassification Services will be sent by email to the email address that the student has on file with the university. Email is the official form of communication for the University of Maryland. Students should review their inbox and spam folders to ensure receipt of all communication sent from Residency Reclassification Services.

Students classified as in-state for admission and tuition purposes are responsible for notifying Residency Reclassification Services in writing within 15 days of any change in their circumstances that might in any way affect their classification at the University of Maryland.

# Readmission and Reinstatement

**Student Success Office**
0110 Hornbake Library
Office of Undergraduate Studies
University of Maryland
College Park, MD 20742
rr-admit@umd.edu

Students who are admitted and do not register for their first semester or cancel registration prior to beginning their first semester must apply again for admission (see Freshman or Transfer Admission). Students who are admitted as "Term Only" also must apply again for admission if they wish to register for a subsequent term. Students admitted as "Non-Degree" seeking students, who would like to become degree-seeking students, must apply again for admission (see Transfer Admission).

Students who have matriculated and registered and did not maintain that registration continuously (fall and spring semesters) to graduation, must apply for readmission or reinstatement to re-enroll at the University of Maryland.

See "Withdrawal from the University" on the Registration (p. 80) page for more detailed information.

# Readmission

Students must apply for readmission if they interrupt registration for one or more semesters and were not academically dismissed at the conclusion of the last semester of attendance.

# Reinstatement

Students who are academically dismissed from the university must apply for reinstatement. All applications for reinstatement are reviewed by a Faculty Petition Board. Students may apply for reinstatement for the semester immediately following dismissal or for any subsequent semester. Only the Faculty Petition Board can grant reinstatement.

Students who are denied reinstatement may be required to comply with specific recommendations made by the Faculty Petition Board in order to be considered for reinstatement in a future semester.

# Reinstatement After Withdrawal

Students who withdraw from the university must apply for reinstatement if they interrupt enrollment for one or more semesters.

Students may apply for readmission or reinstatement at http://studentsuccess.umd.edu.

# Applications

Applications for readmission and reinstatement may be accessed via the web at http://studentsuccess.umd.edu.

## Application Deadlines (Readmission and Reinstatement)[1]

| Semester | Date |
|---|---|
| Fall | April 1st |
| Spring | November 1st |

[1] Students who wish to re-enroll for summer term must apply for fall re-enrollment. Students who wish to enroll for winter term must apply for spring re-enrollment.

Students who have been **academically dismissed** and wish to return the following semester must apply by:

- June 1st for Fall enrollment
- January 6th for Spring enrollment

*All students are encouraged to apply early in order to take advantage of early registration.*

# Summer School

Students who are dismissed or withdraw at the end of the Fall semester are not eligible to attend Summer Sessions unless or until they are approved for reinstatement. Students dismissed at the end of a Spring semester may attend any Summer Sessions prior to being reinstated, provided the student registered for Summer Session courses prior to dismissal or withdrawal, or has applied for re-enrollment.

# Winter Term

Students who are dismissed or who withdraw at the end of the Fall semester may attend Winter term prior to being reinstated provided the student registered for Winter term prior to dismissal or withdrawal. Winter term is offered to students who have attended during the preceding Fall semester. Students with a break in attendance must be re-enrolled to be eligible to attend Winter term. Students readmitted/reinstated for a Spring semester may also attend Winter term.

# Clearances

Clearances from Office of Student Conduct, the Office of Student Financial Services and Cashiering, Health Center, International Education Services and/or the Graduate School may be requested of the applicant.

# FEES, EXPENSES AND FINANCIAL AID


- Departmental Scholarships (p. 25)
- Explanation of Fees (p. 25)
- Merit-Based Financial Assistance (p. 28)
- Need-Based Financial Assistance (p. 29)
- Office of Student Financial Aid (p. 31)
- Tuition and Bill Payment Information (p. 32)
- Undergraduate Tuition and Fees (p. 33)


## Departmental Scholarships

0115 Mitchell Building
Phone: 301-314-TERP (8377)
Fax: 1-301-405-9265
sfa-scholarships@umd.edu
http://financialaid.umd.edu

Many academic departments at the University of Maryland (UMD) offer merit-based scholarships. These scholarships may apply to incoming freshmen, transfer, or continuing UMD students. Most departments will only consider students who enroll for 12 credits per semester and have a grade point average of at least 3.0. For additional information regarding departmental scholarships (https://financialaid.umd.edu/types-aid-umd-institutional-aid/departmental-scholarships/), please contact the appropriate academic department.

## Explanation of Fees

**Office of Student Financial Services and Cashiering**
1135 Lee Building
Phone: 301-314-9000 or 1-888-313-2404
Fax: 301-405-0659
Billtalk@umd.edu
http://Billpay.umd.edu

## Mandatory Fees

### Student Fees Summary

The mandatory fee assessment for undergraduate students is based on number of credit hours as follows:

- Students registered for 9 or more credits: $861.00 per semester;
- Students registered for 8 or fewer credits: $397.00 per semester.

For more information, see http://Billpay.umd.edu/costs/. An explanation of each fee type is available below.

### Athletics Fee

A healthy and sustainable Department of Intercollegiate Athletics (ICA) is an essential part of the university community. Athletics elevates the university's profile, adds to the value of degrees, provides engagement with our 388,000 alumni worldwide, and helps attract a quality, diverse pool of prospective students. Athletics also generates funding for all students via robust fundraising opportunities with donors and corporate partners, and provides academic and research opportunities for students through the Big Ten Academic Alliance. Athletics also provides direct scholarship support, job opportunities and internships for hundreds of student athletes. The athletic fee is an integral revenue source for ICA to continue to provide these and other benefits to the university community.

### Shuttle Bus Fee

The Transportation Services (DOTS) fee supports Shuttle-UM, an essential mobility option for students that also facilitates campus sustainability priorities. Shuttle-UM is a 24/7 operation that provides transit service on and around campus to more than 2.6 million riders a year. In addition to 22 fixed bus routes, Shuttle-UM offers interstate bus service for students during university breaks, paratransit services for individuals with temporary or permanent disabilities, and the overnight, safety-focused "NITE Ride" service. It is a critical transportation solution for students without vehicles. Shuttle-UM routes also reduce the number of automobiles on campus, minimizing vehicular congestion and furthering the University's Climate Action Plan. The mandatory fee also supports Shuttle-UM vehicle and transportation facilities maintenance.

### Student Union Fee

This fee supports the operation of the STAMP as the campus community center. Funds are used to provide physical spaces that support basic services including food/retail/lounges and resource rooms, student engagement, programs, and student group meetings. The STAMP staff serve as mentors and guides to students and groups of students. Staff working with students provide programs, community service options, identity and culturally based communities, arts and recreational programs, spiritual and interfaith offerings, co-curricular programs, student employment and internships, access to enlivening programs and services, and a rich information hub for students as well as faculty, staff, alumni and visitors.

### Student Activities Fee

These fees support student governance and also provide programs and resources for all graduate and undergraduate students including access to legal aid services, funding for recognized student organizations and their programs, activities and programs hosted by organizations like Student Entertainment Events (SEE), and advocacy for students in institutional decision making.

### Recreation Services Fee

The Recreation Services fee supports the in-person and virtual offerings provided by University Recreation & Wellness (RecWell). When on campus, students have access to over 400,000 square feet of indoor recreation spaces, including group fitness studios, an indoor pool, weight rooms, cardio equipment, sport courts and more. Additionally, RecWell manages over 200 acres of outdoor space to meet the recreational needs of all students. When not on campus, students have access to countless virtual group fitness classes, esport and trivia intramural leagues, and an array of adventure offerings like virtual escape rooms and scavenger hunts. Being physically active is a crucial component of success in and out of the classroom, and RecWell is dedicated to creating a culture of wellness where all members of the university community thrive.

### Student Sustainability Fee

This fee was initiated by the undergraduate student body at the University of Maryland to fund sustainability initiatives. All fee revenue is distributed to students, faculty, or staff in the form of Sustainability Fund grants to support projects that reduce the environmental impact of university operations or create opportunities for students to learn more about sustainability through education or research.

### Student Counseling Center Fee

This fee supplements the Counseling Center operations to support the significant increase in demand for student mental health services. Funding from this fee will assist in the development of a treatment team that focuses on the delivery of rapid access, such as triage and referral, single session therapy, crisis intervention, and drop in consultation. The development of a care management team assisting students going to and returning from higher levels of care such as hospitalization, and intensive outpatient programs. The development of embedded modalities, such as "Let's Talk", that help minimize barriers to care for minority students. The Counseling Center's goal is to be able to operate in a manner that allows minimizing wait times to routine therapy while maintaining session limit flexibility, and the capacity to create a unified clinical system that spans the continuum of care with a common landing page and central triage system.

## Other Fees

### Application Fee for Undergraduate Students

A non-refundable fee of $75 is charged to all new applicants.

### Cooperative Education in Liberal Arts, Business, and Science (UNIV099)

Per Semester: $60 (Fall or Spring), $30 (Summer or Winter)

### Engineering Coop Program (ENCO098-ENCO099)

Per Semester: $78

### Enrollment Confirmation Deposit

All newly admitted undergraduate students who intend to matriculate in the Fall or Spring semester must submit a non-refundable $400 deposit, which is credited to their tuition charges when they enroll. Should the student decide not to enroll for the specific semester of application, the $400 deposit is forfeited and cannot be used to offset any account balance, including orientation charges, the student may incur.

Students admitted for the Fall semester must submit this deposit by May 1 or within 30 days from their date of admission, whichever is later, to reserve their place in the entering class. Students admitted for the Spring semester must submit this deposit by December 1 or within 14 days of their date of admission, whichever is later, to reserve their place in the entering class.

### Fees for Auditing Courses

Tuition and Fees for courses taken with the audit grading method are charged just as courses taken for credit at both the undergraduate and graduate levels. Credit hours taken as audit will be added to hours taken for credit in order to determine full-time or part-time status for fee assessment purposes. Special Students are assessed fees in accordance with the schedule for the comparable undergraduate or graduate classification.

### Late Payment Fee

A 5% fee is incurred on the total account balance at time of assessment once per Fall, and once per Spring on amounts past due. An additional 1.5% fee may be incurred in subsequent months where a past due balance remains.

### Late Registration Fee

Late Registration begins on the first day of classes. All students initiating registration for the semester on or after this date will be assessed a $20 late registration fee.

### Maryland English Institute Fees

Students enrolled with the Maryland English Institute pay these fees in support of the Institute. The Intensive English program (UMEI001, UMEI002, UMEI003, and UMEI004) is $6,819.00. The Semi-intensive program (UMEI005) is $4,812 for Undergraduate and $6,515 for Graduate. Students enrolled in the Semi-intensive program may also enroll for regular academic courses and pay the tuition and fees associated with those offerings. The program also offers courses in English Pronunciation (UMEI006) for $2,055, Advanced Writing (UMEI007) for $3,083, and Advanced Oral Communication Skills (UMEI008) for $2,055. Interview Fee is $75 and Microteaching Fee is $100. These charges are subject to change. For more information, please refer to: http://marylandenglishinstitute.com/wpdir/dates-costs/.

### Other Special Fees

The university offers a number of courses (MBA, ENTS, Chemical and Life Sciences, Animal Sciences) that have special course fees in addition to, or in lieu of, the standard tuition charges. Students are encouraged to contact the department prior to registering for the class to determine the total cost of the course.

### Overdue Library Charges

Different fine rates may apply based on which library collection the overdue material resides. Please see http://Lib.umd.edu/access/fines/ for more information.

### Parking Registration Fees

All students enrolled in classes at the university who park a vehicle anytime on campus must register to park each academic year. For additional information, please refer to Department of Transportation Services. (https://transportation.umd.edu/parking/students/fees-and-permit-types/)

### Pre-College Orientation Program Registration Fee

- $227.00 (Student two-day in person program)
- $150.00 (Student one-day in person program)
- $95.00 (Student online only program)
- $85.00 (Family members and supporters) *Only applies if guest is 18 years old or over.

### Property Damage Charge

Students will be charged for damage to property or equipment. When responsibility for the damage can be fixed, the individual student will be billed for it; when responsibility cannot be fixed, the cost of repairing the damage or replacing equipment will be prorated among the individuals involved.

### Service Charges for Dishonored Checks

Payable for each check which is returned unpaid by the payee's bank on initial presentation because of insufficient funds, payment stop, post-dating, drawn against uncollected items, etc.

- For checks up to $100: $10
- For checks from $100.01 to $500: $25
- For checks over $500: $50

When a check is returned unpaid, the student must redeem the check and pay any outstanding balance in the account immediately or late fees may be assessed and the account is subject to transfer to the State of Maryland Central Collection Unit for legal follow-up. Additionally, a minimum 17% collection charge is added to the charges posted to the student's account at the time the transfer is made.

### Special Examination Fee (Credit-by-Exam)

$30 per course for all undergraduates and full-time graduate students; credit-hour charge for part-time graduate students.

### Special Fee for Students Requiring Additional Preparation in Mathematics (MATH003, MATH010, MATH011, MATH013 and MATH015) per Semester

A fee of $300 is required of students whose curriculum calls for MATH110 or MATH115 and who do not pass the qualifying examination for these courses. This Special Math Fee is in addition to course charge. Students enrolled in this course and concurrently enrolled for nine or more credit hours will be considered as full-time students for purposes of assessing fees.

## Cancellation and Withdrawal and Refund of Tuition and Fees

The effective date used in computing refunds for cancellations and withdrawals is the date a signed request to cancel or withdraw from the university is received by the Office of the University Registrar.

### Cancellation and Refund of Tuition and Fees

Students who register and later decide not to attend the university must submit a Cancellation of Registration Form (http://registrar.umd.edu/registration/separating-university/cancel-registration/) to the Office of the University Registrar before the First Day of Classes. Failure to cancel registration will result in a financial obligation to the University of Maryland even if a student does not attend class.

### Withdrawal and Refund of Tuition and Fees

Students may request a withdrawal from all classes at any time between the First Day of Classes and Last Day of Classes. Students should contact the Office of the University Registrar to understand the implications of this action and to submit a signed request to withdraw from the university. The effective date used in computing refunds of tuition and fees is the date the written withdrawal request is received by the Office of the University Registrar.

Undergraduate students withdrawing from the university will be credited for tuition and fees in accordance with the following schedule for a **Fall** or **Spring** Semester:

| Cancellation/Withdrawal Deadlines | Refund |
|---|---|
| Before First Day of Classes (cancellation) | 100% |
| During the Schedule Adjustment Period | 80% |
| 3rd week | 60% |
| 4th week | 40% |
| 5th week | 20% |
| After 5th week | No refund |

**The refund schedule dates are published on the* Academic Deadlines *(*https://registrar.umd.edu/calendars/*) page of the Office of the University Registrar Website for each term. Summer and Winter Academic & Financial Deadlines and Information can be found at the* Extended Studies website *(*http://exst.umd.edu*).*

Students will forfeit their right to a refund if they do not complete the cancellation or withdrawal action described above. Stop payment on a check, failure to pay the semester bill, or failure to attend classes does not constitute a cancellation or withdrawal.

Students anticipating a refund as described above may initiate the process by submitting a request to Student Financial Services and Cashiering at http://billpay.umd.edu. Otherwise, any credit on the student account could be carried over to the next semester.

Note: First-semester freshmen who receive Title IV aid and who withdraw will receive an adjustment to any disbursed aid in accordance with federal regulations.

**No part of the charges for room and board is refundable** except when students officially withdraw from the university or when they are given permission by the appropriate officials of the university to move from the residence halls and/or to discontinue dining hall privileges. In these cases, the room refund will be computed by multiplying the number of periods remaining by the pro rata weekly rate after adjusting for a service charge. Refunds to students having full board contracts will be calculated in a similar manner. No room and/or board refunds will be made after the 14th week of the semester. Students are reminded that reservations for room and board must be canceled by the date published in the residence hall and dining services agreement(s).

In computing refunds to students who have received the benefit of scholarships and loans from university funds, the computation will be made to return the maximum amount to the scholarship and loan accounts without loss to the university.

## Penalties for Drops During Schedule Adjustment (Refund Schedules)

- For a complete explanation of Undergraduate Tuition & Fees, see: Undergraduate Tuition & Fees (https://billpay.umd.edu/UndergraduateTuition/).
- For a complete explanation of refunds and refund schedules, see: Student Financials and Cashiering (https://billpay.umd.edu/refunds/refunds-overview/).

### Full-time Undergraduates – Refund Schedule for Drops (Fall & Spring)*

Full-time undergraduate students do not receive a refund for courses dropped if the total number of credits for which they are registered remains 12 or more.

- **Before the First Day of Classes:** If a full-time undergraduate student drops a course or courses, thereby changing the total number of credits for which the student is registered to 11 or less, charges for the semester will be assessed on the basis of the per credit hour fee for part-time students. However, if the student later adds a course or courses, thereby changing the total number of credits for which the

student is registered to 12 or more, the student will be charged full-time tuition.

- **During the first five days of classes:** If a full-time undergraduate student drops a course or courses, thereby changing the total number of credits for which the student is registered to 11 or less, the student will be charged part-time per credit hour tuition. However, if the student later adds a course or courses, thereby changing the total number of credits for which the student is registered to 12 or more, the student will be charged full-time tuition.
- **After day five of schedule adjustment through the end of schedule adjustment:** If a full-time undergraduate drops a course or courses thereby changing the total number of credits for which the student is registered to 11 or less, charges for the semester will be assessed on the basis of part-time per credit hour tuition plus 20% of the difference between the full-time tuition and fees and appropriate part-time charges.
- **After the Schedule Adjustment Period:** There will be no refund for changing from full-time to part-time status.

**Summer and Winter Academic & Financial Deadlines and Information can be found at the* Extended Studies website *(*http://exst.umd.edu*).*

### Part-Time Undergraduates – Refund Schedule for Drops (Fall & Spring)*

Part-time undergraduates are charged for courses by the credit hour. Students may drop and add courses without penalty provided that the changes are made on the same day and the total number of credits does not change (even exchange). Otherwise, a percentage charge and/or complete charge will be imposed according to the schedule below:

- **Before the First Day of Classes:** 100% refund. There will be no charge for courses dropped prior to this date.
- **During the first five days of classes:** 100% refund. There will be no charge for courses dropped during this period.
- **After day five of schedule adjustment through the end of schedule adjustment**: 80% refund. There will be a 20% charge imposed for courses dropped during this period.
- **After the Schedule Adjustment Period:** 0% refund. There will be no refund; students incur the full charge for courses dropped during this period.

**Summer and Winter Academic & Financial Deadlines and Information can be found at the* Extended Studies website *(*http://exst.umd.edu*).*

# Merit-Based Financial Assistance

0115 Mitchell Building
Phone: 301-314-TERP (8377)
Fax: 1-301-405-9265
sfa-scholarships@umd.edu
http://financialaid.umd.edu

# Freshmen Merit Scholarships

Freshman merit scholarships are offered to the University of Maryland's (UMD) most academically talented incoming students. These competitive awards, offered by the Office of Undergraduate Admissions, are based on past academic performance and potential to excel at the university, not financial need.

Freshman applicants who submit their admission application and all required materials by the November 1 early action deadline are automatically considered for freshman merit scholarships. No additional application is necessary.

### Banneker/Key Scholarship

UMD seeks to identify and select some of the brightest high school seniors to continue their education as Banneker/Key Scholars. There are two award levels for Banneker Key Scholarships: full and partial.

- Full: Covers tuition, mandatory fees, standard on-campus housing and food plan, and book costs support each year for eight consecutive undergraduate semesters.
- Partial: Provides a partial tuition scholarship and book costs support each year for eight consecutive undergraduate semesters.

Scholarship recipients are also admitted to the Honors College. To be considered for the Banneker/Key Scholarship, students must submit a completed admission application and all required application materials by the November 1 early action deadline. Selected semifinalists are invited to an interview conducted by the Banneker/Key Selection Committee. Factors such as a candidate's involvement in community service, talents or skills, leadership, and character all play a part in the final awards. Learn more by visiting the Office of Undergraduate Admissions Freshman Merit Scholarships (https://admissions.umd.edu/finance/freshman-merit-scholarships/) page.

### President's Scholarship

This award provides talented prospective freshmen with scholarship support for eight consecutive undergraduate semesters. Up to $17,500 per year is offered to incoming freshmen. Students are selected through the admission process, with primary consideration given to academic achievement, extracurricular activities, awards, honors, recommendations, and the essay. For full consideration, students must submit a completed application for admission and all required application materials by the **November 1** early action deadline. Learn more by visiting the Office of Undergraduate Admissions Freshman Merit Scholarships (https://admissions.umd.edu/finance/freshman-merit-scholarships/) page.

### Dean's Scholarship

This award provides talented prospective freshmen with scholarship support for two to four consecutive undergraduate semesters. Awards range from $1,500 for freshman year or $4,500 per year for freshmen and sophomore years. To be considered, students must submit a completed admission application and all required application materials by the **November 1** early action deadline. Learn more by visiting the Office of Undergraduate Admissions Freshman Merit Scholarships (https://admissions.umd.edu/finance/freshman-merit-scholarships/) page.

# Transfer Merit Scholarships

Transfer merit scholarships are offered to UMD's most academically talented incoming students. These competitive awards, offered by the Office of Undergraduate Admissions, are based on past academic performance and potential to excel at the university, not financial need.

Transfer applicants who submit their completed admission application and all required materials by the March 1 early action deadline for fall admission are automatically considered for some transfer merit scholarships, while other scholarships require a separate application.

### Frederick Douglass Scholarship

The Frederick Douglass Scholarship (https://admissions.umd.edu/finance/transfer-merit-scholarships/frederick-douglass-scholarship/) is a prestigious UMD award for academically talented transfer students from a Maryland community college. The award covers in-state tuition for four consecutive undergraduate semesters. To be eligible, students must have completed a minimum of 56 credits (or have an associate degree) and have a cumulative grade point average of 3.5 or higher. Students who have previously attended UMD are ineligible for this scholarship. To apply for the Frederick Douglass Scholarship, candidates must submit a completed admission application with all required application materials, and the scholarship application by **March 1**.

### President's Transfer Scholarship

The President's Transfer Scholarship is a two-year, $5,000 per year scholarship for transfer students. The scholarship will be awarded to the most competitive transfer students with excellent academic records and college grade point averages. **No separate application is required** for consideration. Recipients are identified through the evaluation of admission application materials. Students awarded the scholarship will receive notification a few weeks after receiving their admission decision letter. Learn more by visiting the Office of Undergraduate Admissions Transfer Merit Scholarships (https://admissions.umd.edu/finance/transfer-merit-scholarships/) page.

### Maryland Transfer Scholarship

The Maryland Transfer Scholarship provides partial-tuition awards ranging from $5,000 distributed equally over two semesters to $10,000 distributed equally over four consecutive semesters. To be eligible, students must be Maryland residents transferring to the University of Maryland from a two-year or four-year institution, have applied for admission by the early action deadline, and submitted the FAFSA by the priority deadline of January 1. **No separate application is required** for consideration. Recipients are identified through the evaluation of admission application materials. Students awarded the scholarship will receive notification a few weeks after receiving their admission decision letter. Learn more by visiting the Office of Undergraduate Admissions Transfer Merit Scholarships (https://admissions.umd.edu/finance/transfer-merit-scholarships/) page.

## Additional Scholarships

### Creative and Performing Arts Scholarships

These are competitive scholarships that are awarded annually. Primary consideration will be given to incoming freshmen and transfer students from community colleges with outstanding art, dance, music or theater talent. The scholarships cover in-state tuition and mandatory fees. They are renewable for up to three years based upon an acceptable level of performance as defined by the respective departments. Additional application materials and information about required auditions are available directly from the College of Arts & Humanities (https://arhu.umd.edu/academicsundergraduate-studies/scholarships-academic-honors/) page.

### Maryland State Scholarships

The Maryland Higher Education Commission (https://mhec.maryland.gov/preparing/Pages/FinancialAid/descriptions.aspx) (MHEC) awards need-based and merit-based scholarships to Maryland residents. Many different programs available, including the Guaranteed Access (GA) Grant, Educational Assistance (EA) Grant and Legislative Scholarships (Delegate and Senatorial). All Maryland residents are encouraged to apply for State scholarship assistance. Learn more about these and other programs by visiting the MHEC (https://mhec.state.md.us/Pages/default.aspx) website.

Filing the Free Application for Federal Student Aid (FAFSA) annually by the January 1 deadline is sufficient to apply for most Maryland State Scholarships at UMD. However, some may require additional application forms. The application deadline for most programs is **March 1**. The FAFSA is available online at the Federal Student Aid (https://studentaid.gov/) website.

### Scholarships from Other States

Several states have reciprocal agreements with Maryland. Students who are residents of these states may receive funds for study in eligible post-secondary institutions in Maryland. Interested students should contact their state scholarship agencies for information.

### Outside Scholarship Searches

A wide range of scholarships, as well as state and university programs, are available from private sources. However, they are not publicized. We strongly encourage students to conduct their own scholarship search. Fortunately, newly admitted and current UMD students can use UMD's scholarship matching platform, Scholarship Universe (https://financialaid.umd.edu/resources-policies/scholarship-universe/), to find and apply for scholarship opportunities.

### University of Maryland Departmental Scholarships

Many of the academic departments at UMD offer merit-based scholarships. Some departmental scholarships can be applied to using Scholarship Universe. For others, students may need to contact the office or department responsible for selecting recipients to receive additional details. For more information, please visit the Departmental Scholarships (p. 25) section of the catalog.

# Need-Based Financial Assistance

0115 Mitchell Building
Phone: 301-314-TERP (8377)
Fax: 301-405-9265
umdfinaid@umd.edu
http://financialaid.umd.edu

## Grants

The Office of Student Financial Aid administers several grant programs for University of Maryland (UMD) students. Grant offers are made based on financial need as determined by the information provided on the Free Application for Federal Student Aid (FAFSA). Grants do not have to be repaid.

### Federal Pell Grant

This grant provides a "foundation" of financial aid, to which aid from other sources may be added. Only undergraduate students seeking their first bachelor's degree and demonstrating exceptional financial needs may receive a Federal Pell Grant. All undergraduate students will be considered for this grant, regardless of when their completed FAFSA is received. Students may receive the Federal Pell Grant for less than full-time attendance. However, the offer will be prorated based on the number of credits attempted. Offers range from $740 to $7,395 for the 2024-2025 academic year. For more information, please visit the Office of

Student Financial Aid's Federal Aid (https://financialaid.umd.edu/types-aid/federal-aid/) webpage.

### Federal Supplemental Educational Opportunity Grant (SEOG)

Only undergraduate students seeking their first bachelor's degree and who demonstrate exceptional financial need may receive a Federal Supplemental Educational Opportunity Grant (SEOG). Students must qualify for the Federal Pell Grant to be considered for the SEOG and must submit their completed 2024-25 FAFSA by the April 1 priority deadline. Students may receive the SEOG for less than full-time attendance, although the offer will be prorated based on the number of credits attempted. Offers range from $100 to $600 for the 2024-2025 academic year. For more information, please visit the Office of Student Financial Aid's Federal Aid (https://financialaid.umd.edu/types-aid/federal-aid/) webpage.

### University of Maryland Grant

The UMD grant is offered to full-time undergraduate students who are State of Maryland residents demonstrating financial need. To qualify for consideration, students must submit their completed 2024-25 FAFSA by the April 1 priority deadline. Recipients are selected for this offer based on the availability of funds and the qualifications of the applicants.

### Terrapin Commitment

Terrapin Commitment is offered to low-income full-time undergraduate students who are State of Maryland residents demonstrating financial need. Students must submit their completed FAFSA for consideration. Recipients are selected for this offer based on the availability of funds and the qualifications of the applicants.

### Teacher Education Assistance for College and Higher Education (TEACH) Grant

Through the College Cost Reduction and Access Act of 2007, Congress created the Teacher Education Assistance for College and Higher Education (TEACH) Grant (https://studentaid.gov/understand-aid/types/grants/teach/), which provides grants of up to $3,772 per year to students who intend to teach in a public or private elementary or secondary school that serves students from low-income families.

To receive the TEACH Grant, students must complete the FAFSA; be a U.S. citizen or eligible non-citizen; enrolled as an undergraduate, post-baccalaureate, or graduate student; enrolled in coursework necessary to begin a career in teaching or plan to complete such coursework; maintain a cumulative 3.25 GPA and sign a TEACH Grant Agreement to Serve. If you have questions regarding the TEACH Grant, please email umdfinaid@umd.edu.

## Loan Programs

### Federal Direct Loan Program

The Federal Direct Loan program is a low-interest-rate loan based on financial need for students who attend college at least half-time. The FAFSA is the only application students need to submit to be considered for a Direct Loan. This loan is borrowed by the student and must be repaid. There are two types of Direct Loans:

- The Direct Subsidized Loan is offered to students with demonstrated financial need and is interest-free while students are enrolled at least half-time in a degree-seeking program.
- The Direct Unsubsidized Loan is an interest-bearing loan for students who do not demonstrate financial need or do not demonstrate sufficient need to borrow a full Direct Subsidized Loan. Students borrowing a Direct Unsubsidized Loan will be required to repay the principal and any interest that may accrue during school attendance.

All students applying for either type of Direct Loan must complete the FAFSA. Students who graduate or drop below half-time status are granted a six-month grace period before Direct Loan repayment is required.

The following are the maximum loan amounts per academic year:

- $5,500 for undergraduate students with freshman status.
- $6,500 for undergraduate students with sophomore status.
- $7,500 for undergraduate students with junior or senior status.

Students who do not demonstrate sufficient need to borrow the maximum Direct Subsidized Loan may borrow the difference in a Direct Unsubsidized Loan. The maximum total borrowing limit for most undergraduate students is $31,000.

### Federal Direct PLUS Loan

The Federal Direct PLUS Loan is a non-need-based loan, which parents/guardians may borrow to help cover the cost of their dependent children's education. The Direct PLUS Loan enables parents/guardians to borrow up to the student's cost of attendance (https://financialaid.umd.edu/resources-policies/cost-attendance/) (as determined by the school) minus all other financial aid. Otherwise, there is no yearly or cumulative borrowing limit. The student must complete the FAFSA to apply for the Direct PLUS Loan. After the FAFSA is completed, the parents/guardians must submit the Direct PLUS Loan application (https://studentaid.gov/app/launchPLUS.action/?plusType=parentPlus) through the U.S. Department of Education. The Office of Student Financial Aid will receive the application and review it to calculate and certify of the maximum loan amount the parent may borrow per student, per year.

The Direct PLUS Loan is granted to borrowers based on creditworthiness as determined by the U.S. Department of Education. The borrower can choose to begin repayment on the Direct PLUS Loan either 60 days after the loan is fully disbursed or six months after the dependent student (on whose behalf the parent borrowed) ceases to be enrolled on at least a half-time basis.

## Self-Help (Work-Study and Employment)

### Federal Work-Study

The Federal Work-Study (FWS) program provides students with the opportunity to earn money to meet their educational and personal expenses through employment. Money earned from the FWS program does not have to be paid back. Students must submit their completed FAFSA by the April 1 priority deadline to be considered for FWS. Pay rates depend on the position's level of complexity but will be at least the federal minimum wage. Like all university employees, FWS employees receive a paycheck every other week for hours worked. Most FWS jobs are on campus, though the Community Service Program allows FWS students to work off-campus at several Federal Government Agencies. The number of hours students may work is limited to 20 per week while school is in session and 40 per week during vacations and summer break.

### Paid Internships

Students with paid internships sign a contract at the beginning of the semester. The contract states the payment amount for the number

of hours to be worked during that semester. The payment amount is advanced to the student's account at the start of each semester. This program differs from Federal Work-Study in that students receive all "wages" at the beginning of each semester instead of a bi-weekly paycheck and those funds are applied directly to the student's account. Several offices and departments on campus (such as Shuttle-UM, Residential Facilities and Dining Services) offer paid internships. Students should contact the department or office where they are interested in working.

# Scholarships

Some scholarships, such as Maryland State Scholarships, are offered based on demonstrated financial need and merit. To learn more, please review the Merit-Based Financial Assistance (https://academiccatalog.umd.edu/undergraduate/fees-expenses-financial-aid/merit-based-financial-assistance/) section.

Additionally, admitted and current students can use UMD's scholarship matching platform, Scholarship Universe (https://financialaid.umd.edu/resources-policies/scholarship-universe/), to find and apply for scholarship opportunities.

# Office of Student Financial Aid

0115 Mitchell Building
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Fax: 1-301-405-9265
umdfinaid@umd.edu
http://financialaid.umd.edu

**Director:** Dawit Lemma

We understand that without financial support, a college degree would be out of reach for many talented students. That's why the University of Maryland (UMD) has a long history of providing financial support to students of all economic backgrounds. The Office of Student Financial Aid is here to help you navigate the financial aid process and understand your options. Scholarships, grants, loans, and work-study funds are offered based on academic ability and/or financial need as determined by a federal needs analysis system.

To receive priority consideration for financial aid, all new, returning, and continuing eligible students must complete and submit the Free Application for Federal Student Aid (https://studentaid.gov/h/apply-for-aid/fafsa/) (FAFSA) each year by the UMD priority deadline of **April 1**. The FAFSA becomes available on October 1.

- **Students applying to UMD should not wait to be admitted before filing the FAFSA.** The FAFSA has no bearing on a student's admission decision. However, students will not receive final consideration for aid until they have been offered admission to a degree program or eligible certificate program.

# Estimating Educational Cost

The Office of Student Financial Aid has prepared an estimated cost of attendance (https://financialaid.umd.edu/resources-policies/cost-attendance/) to assist students with estimating the cost of a year in UMD. These estimated rates include direct costs (tuition, fees, on-campus housing, and food plan) and estimates of indirect expenses (transportation, books, supplies, miscellaneous personal costs).

Off-campus cost of living expenses are determined based on the average estimated housing and food costs for the local area. Since these are indirect costs, the university will not bill them.

UMD tuition and fees can be found by visiting the Office of Student Financial Services and Cashiering (https://billpay.umd.edu/costs/) website.

# General Regulations Applicable to All Forms of Aid

## Aid Procedures

The Office of Student Financial Aid will determine financial aid offers that best fit the students' needs and qualifications. A financial aid offer is normally a combination of grants, loans and student employment. It is determined by the availability of financial aid and the financial circumstances of each student, as expressed on the FAFSA.

## Change in Financial Situation

Students are responsible for notifying the Office of Student Financial Aid of any changes to their financial circumstances during the year.

## Citizenship Status

Students must be United States citizens or eligible non-citizens to be eligible for federal, state, or university financial assistance.

## Default/Owe Refund

To be eligible for financial aid from UMD, students cannot be in default on an educational loan or owe any refund on a Pell Grant or Supplemental Educational Opportunity Grant (SEOG) previously received at any post-secondary institution.

## Degree-Seeking

Students must be working toward, or have recently been admitted to, a degree/eligible certificate program to be eligible to receive financial aid.

## Full-Time Status

For most types of aid, students must attempt at least 12 credit hours each semester to receive a financial aid offer. Please refer to the standards of Satisfactory Academic Progress (https://financialaid.umd.edu/resources-policies/satisfactory-academic-progress/) when considering dropping below 12 credit hours for any given semester.

## Reapplication Requirement

All students requesting need-based aid must complete and submit the FAFSA annually. Need-based assistance is not automatically renewed from year to year. Each application must indicate a continued financial need, and the student must maintain Satisfactory Academic Progress (https://financialaid.umd.edu/resources-policies/satisfactory-academic-progress/).

## Receiving a Non-University Offer

If a student receives assistance (scholarship, grant, waiver, or loan) from a non-university source, the university may reduce the financial aid offered by the university. It is the student's responsibility to notify the Office of Student Financial Aid of all outside offers.

### Satisfactory Progress

Academic performance is reviewed at the end of each semester or upon a student's re-enrollment at UMD.

This is done to determine if the student is able to receive financial aid by making Satisfactory Academic Progress (https://financialaid.umd.edu/resources-policies/satisfactory-academic-progress/) (SAP). The review is based on qualitative (grade point average) and quantitative measures (credits completed vs. credits attempted). It is also cumulative for all academic work attempted at the University of Maryland and transferred credits.

# Tuition and Bill Payment Information

**Office of Student Financial Services and Cashiering**
1135 Lee Building
Phone: 301-314-9000 or 1-888-313-2404
Fax: 301-405-0659
Billtalk@umd.edu
http://Billpay.umd.edu

Tuition and fees for the University of Maryland, College Park, are listed in the next section. The university requires that all deposits and fees be paid by stated deadlines, or penalties may be imposed. Many potential administrative difficulties can be avoided if students carefully follow published procedures and notify the appropriate office(s) of any changes that might affect their financial obligation to the university. This includes updating all contact information so communications concerning billing is promptly received, and notifying the Office of Student Financial Services and Cashiering of changes of address so that mail affecting the student's financial relationship with the university will not be delayed or returned.

Additional information for Summer Session, Winter Session, Freshmen Connection and certain Professional Programs may be found at http://exst.umd.edu.

A deferred-payment plan for fall and spring semesters is available during a set enrollment period. Information regarding the Terp Payment Plan is available at http://Billpay.umd.edu/tpp/. If you are new to UMD, we recommend reviewing the helpful billing related checklists for students at http://Billpay.umd.edu/newstudents/ or for parents and guardians at http://Billpay.umd.edu/parents/.

Future registration privilege for active students is granted once the balance on the account is below $250. Returning students will not be permitted to complete future term registration until all past due financial obligations to the university, including library fines, parking violations, and other penalty fees and service charges, are paid in full.

Although the university sends monthly email notifications of generated bills when a balance is owed, it cannot assume their receipt. Students are reminded that it is their responsibility to obtain a copy of the bill by logging into the student financial portal with frequency. Check your account balance and view current or prior monthly billing statements at http://Billpay.umd.edu/inquiry/.

Students are highly encouraged to utilize electronic payment methods over any others, but checks or money orders are accepted and should be made payable to the University of Maryland for the exact amount due and not include any payment in excess. The student's name and University ID number (UID) should be written on the front. University grants and scholarships will be posted to the student's account once received, however due to certain funding type timing of disbursement, the first bill generated prior to the beginning of each semester may not include these expected account credits.

Students are urged to check their residence hall and dining service agreements for procedures for cancellation of reservations and for deadlines for receiving refunds of deposits. Refunds cannot be made after these deadlines, even if the student decides not to attend the University of Maryland, College Park.

Students will incur a late payment fee in the event of failure to pay a balance on their student account by its due date. A late payment fee of 5% or $10.00, whichever is higher, will be assessed on the total past due amount once per Fall and once per Spring term. An additional 1.5% fee may be charged in subsequent months thereafter on past due account balances.

Students who fail to pay the indebtedness during the semester in which delinquency occurs will be ineligible to register for subsequent semesters and not be permitted other university privileges until the debt and the penalty fees are cleared.

In the event a student with a delinquent account becomes registered for a future semester, the account must be settled in full prior to the onset of the future semester, to avoid cancellation of registration for that upcoming term.

The state has established, under legislative mandate, a Central Collections Unit (CCU) within the Department of Budget and Fiscal Planning. The university is required by state law to refer all delinquent accounts to the State Collections Unit. Please note that Maryland law allows the Central Collections Unit to intercept state income tax refunds for individuals with delinquent accounts, and that CCU is authorized to notify a National Credit Bureau of the delinquency at the time the account is referred to it for collection.

Central Collections Unit costs incurred in collecting delinquent accounts will be charged to the student. The minimum collection fee is 17% plus attorney and/or court costs.

No degrees, diplomas, or certificates of records will be issued to students who have not made satisfactory settlement of their accounts.

**All accounts due from students, faculty, staff, non-students, etc., are included within these guidelines.**

**Note:** Additional Information on Student Financial Obligations, Disclosure of Information, Delinquent Accounts, and Special Fees, can be found in the "Policy Statements" section at the beginning of this catalog.

# Payment of Fees

### Online

VISA, MasterCard, American Express, and Discover credit cards; VISA and MasterCard branded debit cards; and ACH (electronic checking) payments are accepted. There is no fee for ACH payments. There is a 2.85% processing fee charged by the university third party payment processor for credit and debit card payments. Online payments can be made by visiting http://Billpay.umd.edu/payments/.

### In Person or Mailed

Paper checks or money orders should be made payable to "University of Maryland." and should include the student's University ID number written on the front. Cash is no longer accepted.

# Undergraduate Tuition and Fees

**Office of Student Financial Services and Cashiering**
1135 Lee Building
Phone: 301-314-9000 or 1-888-313-2404
Fax: 301-405-0659
Billtalk@umd.edu
http://Billpay.umd.edu

*An Important Fee Notice: Notwithstanding any other provision of this or any other University of Maryland publication, the university reserves the right to make changes in tuition, fees, and other charges at any time deemed necessary by the university and the University System of Maryland Board of Regents. Additional Tuition and fee information is available online at* http://Billpay.umd.edu.

# 2024-2025 Academic Year

## Full-time Undergraduate Students

*(For billing purposes, a student is considered full-time for a semester if the number of credit hours enrolled is 12 or more.)*

### Maryland Residents (In-state)

| Fee | Total Academic Year Cost (fall and spring semesters) |
|---|---|
| Tuition | $10,087.00 |
| Additional Differential Tuition for full-time juniors and seniors who are majoring in Business, Engineering, or Computer Science (regardless of residency classification) | $3,090.60 |
| Mandatory Fees (includes Tech fee). Maximum charged to all students registered for 9 or more credits | $1,722.00 |
| Board (Resident Dining Plan - Base Plan) | $6,097.00 |
| Room (Standard 2-person w/AC, includes Telecom fee) | $9,562.00 |

### Residents of the District of Columbia, Other States, and Other Countries

| Fee | Total Academic Year Cost (fall and spring semesters) |
|---|---|
| Tuition | $39,464.00 |
| Additional Differential Tuition for full-time juniors and seniors who are majoring in Business, Engineering, or Computer Science (regardless of residency classification) | $3,090.60 |
| Mandatory Fees (includes Tech fee). Maximum charged to all students registered for 9 or more credits | $1,722.00 |
| Board Contract (Resident Dining Plan - Base Plan) | $6,097.00 |
| Room (Standard 2-person w/AC, includes Telecom fee) | $9,562.00 |

## Tuition and Fees for Part-time Undergraduate Students

*(For billing purposes, a student is considered part-time for a semester if the number of credit hours enrolled is 11 or fewer)*

| Fee | |
|---|---|
| In-State Tuition (per credit hour) | $420.24 |
| Out-of-State Tuition (per credit hour) | $1,722.00 |
| Additional Differential Tuition for full-time juniors and seniors who are majoring in Business, Engineering, or Computer Science (per credit hour, regardless of residency classification) | $126.99 |
| Mandatory Fees (per semester) | |
| 9-11 credit hours (per semester) | $861.00 |
| 8 or fewer credit hours (per semester) | $397.00 |

For more information regarding Differential Tuition, please view the Differential Tuition FAQ document (https://billpay.umd.edu/sites/default/files/inline-files/Differential_Tuition_FAQ%20%281%29.pdf). Additional program rate structures and fee information is available at http://Billpay.umd.edu/costs/.

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# Academic Achievement Programs

2204 Marie Mount Hall
Phone: 301-405-4736
Fax: 301-314-9162
http://aap.umd.edu

**Executive Director:** Jerry L. Lewis, J.D.

The Academic Achievement Programs (AAP) primarily serves traditionally underrepresented and low-income and first-generation students. Academic support, skill enhancement, academic advising and counseling, and tutoring are provided for these populations and for students with disabilities. Academic Achievement Programs include the Intensive Educational Development (IED), Educational Opportunity Center (EOC), the Ronald E. McNair Post-Baccalaureate Achievement Program (McNair), the Summer Transitional Program (STP), Student Support Services (SSS), Educational Talent Search-Central (ETS-Central) and Educational Talent Search-North (ETS-North). EOC, McNair, SSS and both ETS Central and North are part of the Federal TRIO programs and are funded by the U.S. Department of Education to promote access, provide support services, and motivate traditionally underrepresented students for retention in and graduation from undergraduate programs and prepare for doctoral programs.

## PROGRAMS

## Educational Opportunity Center (EOC)

Phone: 301-429-5933

**Director:** Marcal Graham, Ed.D.

UM-EOC is supported by a U.S. Department of Education grant designed to assist persons 19 and older, low-income, and first-generation in pursuing post-secondary educational opportunities. UM-EOC serves primarily Inner-Beltway communities in Prince George's County and provides assistance in the application process for admission to and financial aid for post-secondary education. Specific guidance is given in selecting colleges, completing the FAFSA, and promoting post-secondary education for target populations. EOC also works with high school seniors in some Prince George's County High Schools.

## Educational Talent Search Programs North

Phone: 301-429-5933

**Director:** Bridget Brandon, M.S.

Educational Talent Search programs (ETS) are federally funded by the Department of Education to serve a total of 1,000 students from targeted Prince George's County schools. ETS is designed to identify academically talented and promising college students who are in the ninth and tenth grades and are highly likely candidates for competitive higher educational institutions admission/enrollment across the United States. The programs provide guidance, academic advising, coaching, tutoring, parent involvement training/support through high school and assistance with the college enrollment and financial aid process.

## Educational Talent Search Programs Central

Phone: 301-429-5933

**Director:** Carla Partlow, M.B.A.

Educational Talent Search programs (ETS) are federally funded by the Department of Education to serve a total of 1,000 students from targeted Prince George's County schools. ETS is designed to identify academically talented and promising college students who are in the ninth and tenth grades and are highly likely candidates for competitive higher educational institutions admission/enrollment across the United States. The programs provide guidance, academic advising, coaching, tutoring, parent involvement training/support through high school and assistance with the college enrollment and financial aid process.

## Intensive Educational Development (IED)

Phone: 301-405-4739

**Director:** Sharon VanWright, Ed.D.

IED provides an array of intensive academic and tutorial services to first-year and second-year students who participate in the Summer Transitional Program (STP), eligible first- and second-year transfer students, and other eligible students who seek academic support. The IED program begins with the STP; prospective students who are admitted to the university through the IED program are required to attend this six-

week transitional program. Successful completion of the STP is required for admission to the university. Admitted students continue to receive program services throughout their undergraduate career at the university.

## Ronald E. McNair Post-Baccalaureate Achievement Program

Phone: 301-405-4749

**Director:** LaToya Walters, Ph.D.

The McNair Post-Baccalaureate Achievement Program (McNair Program) is funded and designed principally to prepare low-income, first-generation college juniors and seniors and/or students from traditionally underrepresented groups to matriculate and retain in graduate programs and earn doctoral degrees. The McNair Program is a year round commitment that consists of monthly workshops during the academic year and a six-week summer research experience that affords McNair Scholars the opportunity to work intimately with faculty mentors on specific research projects. McNair Scholars are required to complete a research abstract/paper for publication, and receive financial support towards presenting their research at conferences. The McNair Program offers instructional courses and workshops, as well as expert training and advice on written and oral communication skills, research methodologies, the preparation of compelling personal statements, admission and financial aid applications, and graduate school admission tests. “Whether or not you reach your goals in life depends entirely on how well you prepare for them and how badly you want them” and the McNair Program is committed to providing services to best equip students with a skill set that leads to the successful completion of doctoral degrees (Dr. Ronald E. McNair).

## Student Support Services (SSS)

Phone: 301-405-4739

**Director:** Melanie Glover, Ph.D.

SSS is a U.S. Department of Education grant supported program geared toward low-income and first-generation college students. It works in conjunction with the IED Program focusing much of its support to first- and second- year students. SSS provides academic and career advising, tutoring, stress management, and study-skill and test-taking support to eligible low-income and first-generation undergraduate students throughout their time at the university. The SSS program also provides financial aid workshops and assistance, individual and group counseling, and leadership development workshops. In limited cases, SSS provides supplemental grant aid to eligible participants in the program.

## Summer Transitional Program (STP)

Phone: 301-405-4739

**Director:** Sharon VanWright, Ed.D.

The Summer Transitional Program (STP) assists students in both their academic and personal adjustment to the university. It includes very intensive skills enhancement in math, English, and college study strategies, coupled with enrollment in a selected three-credit university course with tutoring to facilitate students' academic adjustment. In addition, students enroll in a one-credit orientation course and participate in weekly individual and/or group counseling sessions. The six-week STP is required of all students admitted to the university through SSS/IED.

# Computing Services: Division of Information Technology

0398 Edward St. John Learning and Teaching Center
Phone: 301-405-1500
itsupport@umd.edu
https://it.umd.edu

**Vice President and Chief Information Officer:** Jeffrey K. Hollingsworth, Ph.D.

The Division of Information Technology is part of a University of Maryland student's everyday academic and social life. The division plans, develops, supports, and maintains computing, networking, and telecommunications services for the university community to enhance both day-to-day academic and business goals and to further the university's standard of excellence in education and research.

Many faculty members have integrated technology into courses, both inside and outside of the classroom. Some professors use clickers to collect student feedback during class. Through Canvas, the university's Enterprise Learning Management System (ELMS) (http://elms.umd.edu), instructors can provide online course materials, collect assignments, post grades electronically, and hold discussion sessions. DIT provides projectors, cameras, and video capture in most classrooms.

The university's wireless network gives students the ability to connect to the Internet from almost anywhere on campus. Every student living in a residence hall also has a dedicated high-speed data jack to use when connecting to the university network from their room. Students are encouraged to use their university-provided TERPmail (https://terpmail.umd.edu) Google Workspace accounts for email, collaborating with others, and syncing files on multiple devices.

Service Desk staff (301-405-1500) are available to answer IT questions and provide tech support, and they can be contacted by email, over the telephone, and via live chat. The Service Desk website (https://itsupport.umd.edu) enables you to consult support articles that provide how-to information and a catalog of IT services, check and subscribe to service alerts (https://itsupport.umd.edu/itsupport/?id=kb_article&sysparm_article=KB0011368), and initiate and track help requests online 24/7.

In-person IT support is available at Terrapin Tech in the Edward St. John Learning and Teaching Center on campus. Terrapin Tech’s certified technicians can assist you with school tech recommendations, software installations, data backups, virus removals, and more.

Many popular software titles are available at no individual cost via downloads or subscriptions through TERPware (https://terpware.umd.edu), including Microsoft Office, Adobe Creative Suite, MATLAB, Mathematica, and more. Discounts on cellular devices and service (https://itsupport.umd.edu/itsupport/?id=kb_article_view&sysparm_article=KB0016183) are also available to University of Maryland students.

# Education Abroad

1118 H.J. Patterson Hall
Phone: 301-314-7746

educationabroad@umd.edu
http://umd.edu/studyabroad/

**Interim Director:** Lauren Rusczcyk

The mission of Education Abroad is to empower all students with the knowledge, skills and perspectives to become engaged global citizens —leaders and professionals with a strong sense of social responsibility who fearlessly embrace global and local challenges with optimism, passion and innovative thinking. At UMD, over 23 percent of our students study abroad prior to graduation.

Experiences like study abroad give our students an international edge in the job market after graduation and throughout their career. During their time abroad, students build cross-cultural competence, a deeper understanding of perspectives different from their own and problem solving skills.

Education Abroad offers more than 300 programs in over 60 countries and can accommodate each student's academic, financial and personal needs. All majors are able to study abroad with programs designed to complement academic plans and enhance learning through experiential opportunities. Our programs are credit-bearing and students may earn major, minor, general education or elective credits abroad. Internship and service learning programs are also available. Programs are offered during the summer, winter, spring break, semester or academic year.

## Start Your Journey with Education Abroad

It's never too early to begin your global journey at UMD (https://globalmaryland.umd.edu/offices/education-abroad/getting-started/)! Education Abroad recommends students meet with their academic advisor to discuss requirements for your academic track and courses commonly taken abroad.

Education Abroad offers a variety of resources for students to explore study abroad opportunities, including:

- EA Advising (https://globalmaryland.umd.edu/offices/education-abroad/make-appointment/): Professional advisors guide students in the selection of suitable programs and the arrangement of academic credit, assist with applications for financial aid, conduct pre-departure orientations, and provide on-call support to participants overseas.
- Program Search (https://myea.umd.edu/?FuseAction=Programs.ProgramDiscovery): Browse study abroad programs by course topic, country, term, and more.
- Study Abroad Course Database (https://marylandglobal.umd.edu/global-learning-all/study-abroad/explore/explore-courses/?qt-program_and_course_search=1#qt-program_and_course_search): View past study abroad courses to see how study abroad might fit into your academic plan.

# Enrollment Management

Clarence M. Mitchell, Jr. Building
Ground Floor
7999 Regents Drive
College Park, MD 20742
Phone: 301-314-TERP (8377) or 1-800-422-5867

**Associate Vice President for Enrollment Management:** Barbara Gill

Grounded in the mission of the University of Maryland, the purpose of the area of Enrollment Management is to recruit, admit, enroll, and support talented students from diverse backgrounds. The area serves to promote the success of these students who then benefit from, and contribute, to the intellectual, social, and cultural life of the university, their communities, and the world. The staff is comprised of student-centered and data-supported professionals who are committed to designing, implementing, and providing the necessary services from pre-enrollment to graduation. The Enrollment Management focus is to provide pathways to an accessible and affordable education for the most promising students from the State of Maryland, across the United States, and around the world.

Enrollment Management is comprised of the following offices:

- Office of Undergraduate Admissions (p. 18)
- Office of Student Financial Aid (p. 31)
- Office of the University Registrar (p. 43)

# Extended Studies

**SUMMER, WINTER, AND UNDERGRADUATE PROGRAMS, PROFESSIONAL AND CONTINUING EDUCATION**

2205 Artemesia Building
exst@umd.edu
http://exst.umd.edu

**Director, Programs & Marketing/Communication:** Terrie Hruzd

Extended Studies partners with University of Maryland (UMD) academic units to provide administrative services for credit and non-credit initiatives that target a diverse range of students at the pre-college, undergraduate, graduate, and professional level. Programs include Summer, Winter, and Undergraduate Programs, and Professional and Continuing Education.

**Summer and Winter Sessions** serve current and incoming UMD students, visiting students from other two- and four-year institutions, professionals, and lifelong learners. Both sessions offer courses that meet in-person or online, providing students with flexibility and convenience to make progress towards graduation. Summer Session includes **Terp Young Scholars**, a three-week pre-college experience that targets academically talented high school students.

**Undergraduate Programs** include Freshmen Connection, Undergraduate Programs at the Universities at Shady Grove, and Undergraduate Programs at University System of Maryland at Southern Maryland. **Freshmen Connection** serves spring-admitted freshmen who start earning UMD credits in the fall semester and get on track to graduate in four years. With **Undergraduate Programs at Shady Grove** and **Southern Maryland**, students in their final two years earn a UMD undergraduate degree in a convenient learning environment.

**Professional and Continuing Education** includes Graduate, Post-Baccalaureate, Continuing Education, and Executive Education Programs, and MOOCs (Massive Open Online Courses). **Graduate Programs** are crafted with expertise, innovation, and convenience to advance professional career goals. **Post-Baccalaureate Programs** prepare students for graduate or professional school training. **Continuing Education Programs** offer non-credit learning opportunities through UMD's Open Learning Catalog. **Executive Education Programs** serve managers, business leaders, and executives with customized training programs. **UMD MOOCs** utilize UMD's expertise to offer online programs that expand knowledge and career opportunities.

# Global Learning Initiatives

H.J. Patterson Hall
Phone: 301-405-8535
info-gli@umd.edu
http://globalmaryland.umd.edu

**Director:** Raluca Nahorniac, Ph.D.

Engage globally right from home! At UMD, impactful global experiences happen on our campus every day for students to immerse themselves, increase awareness and shift their perspectives on topics related to global injustice.

Global Learning Initiatives (GLI) aims to advance Global Learning for All to ensure all students graduate as citizens and professionals who are dedicated to improving the global common good. GLI collaborates with academic units and international partners to develop unique global learning opportunities—including internships (https://marylandglobal.umd.edu/global-learning-all/global-learning-home/programs/internships/), leadership development (https://marylandglobal.umd.edu/global-learning-all/global-learning-home/programs/leadership-development/) and language learning programs (https://marylandglobal.umd.edu/global-learning-all/global-learning-home/programs/language-learning-opportunities/).

## Global Classrooms

GLI engineers UMD's Global Classrooms (https://globalmaryland.umd.edu/content/welcome-global-classrooms/), a first-of-its-kind virtual learning program allowing our students to connect and collaborate with classmates, faculty and communities from UMD and 25+ peer institutions around the world. Together, you will work with your cohort to gain real-world skills and take on the global challenges that impact us all. Whether it's helping to advance healthcare in Bangladesh, design agricultural technology in Liberia or create an AI language app in Ecuador, Global Classrooms opens the door for students to create global impact without leaving our campus! Global Classrooms experiences range from short, one-class interactions to full semester courses.

Learn more at http://go.umd.edu/gc-umd (https://globalmaryland.umd.edu/content/welcome-global-classrooms/).

## Universitas 21

GLI also manages UMD's collaborations as a member of the Universitas 21 (U21) network, which brings together research-intensive universities from six continents to exchange knowledge and perspectives. As a member of U21, students have the opportunity to participate in virtual exchanges like the U21 Global Citizens Program (https://marylandglobal.umd.edu/global-learning-all/global-learning-home/programs/leadership-development/u21-global-citizens/) and U21 Sustainable Micro-internships (https://marylandglobal.umd.edu/global-learning-all/global-learning-home/programs/internships/u21-sustainable-micro-internships/) free of charge.

## Honor Societies

Students who excel in scholarship and leadership may be invited to join the appropriate honor society. Honor societies at Maryland include:

- Alpha Chi Sigma (Chemistry)
- Alpha Epsilon (Agricultural Engineering)[1]
- Alpha Epsilon Delta (Pre-Med)[1]
- Alpha Epsilon Rho (Broadcast Journalism)
- Alpha Kappa Delta (Sociology)[1]
- Alpha Lambda Delta (Freshman Scholarship)[1]
- Alpha Phi Sigma (Criminal Justice)
- Alpha Zeta (Agriculture)
- Beta Alpha Psi (Accounting)
- Beta Gamma Sigma (Business Management)
- Black Honors Caucus
- Chi Epsilon (Civil Engineering)[1]
- Delta Nu Alpha (Transportation)
- Delta Phi Alpha (German)
- Delta Sigma Pi (Business)
- Eta Beta Rho (Hebrew)
- Eta Kappa Nu (Electrical Engineering)[1]
- Gamma Theta Upsilon (Geography)[1]
- Golden Key Honor Society (Leadership/Scholarship)[1]
- Kappa Delta Pi (Education)[1]
- Kappa Tau Alpha (Journalism)[1]
- Lambda Pi Eta (Speech Communication)[1]
- Mortar Board National Honor Society (Scholarship)[1]
- National Society of Collegiate Scholars[1]
- Omega Chi Epsilon (Chemistry Engineering)[1]
- Omega Rho (Business)[1]
- Omicron Delta Epsilon (Economics)[1]
- Omicron Delta Kappa (Scholarship/Leadership)[1]
- Order of Omega (Fraternity/Sorority Leadership)[1]
- Phi Alpha Epsilon (Health/Human Resources)
- Phi Alpha Theta (History)[1]
- Phi Beta Kappa (Scholarship)
- Phi Chi Theta (Business and Economics)
- Phi Eta Sigma (Freshman Scholarship)[1]
- Phi Kappa Phi (Senior/Graduate Scholarship)[1]
- Phi Sigma (Biology)[1]
- Phi Sigma Pi (Scholarship/Leadership)[1]
- Phi Sigma Iota (French/Italian)[1]
- Pi Sigma Alpha (Political Science)[1]
- Phi Sigma Theta[1]
- Pi Tau Sigma (Mechanical Engineering)
- Primannum Honor Society[1]
- Psi Chi (Psychology)[1]
- Sigma Alpha Omicron (Microbiology)
- Sigma Delta Chi (Journalism)
- Sigma Delta Pi (Spanish)[1]
- Sigma Tau Delta (English)[1]
- Tau Beta Pi (Engineering)[1]
- Tau Beta Sigma

[1] Member of Association of College Honor Societies

## Intercollegiate Athletics

XFINITY Center

Phone: 301-314-7075
Fax: 301-314-7149
http://umterps.com

**Director of Athletics:** Damon Evans

The Department of Intercollegiate Athletics is responsible for directing intercollegiate athletic programs for both women and men, and for managing the campus' athletic facilities.

Women's intercollegiate athletic teams include cross country, field hockey, soccer and volleyball in the fall; basketball, indoor track/field and gymnastics during the winter; and lacrosse, softball and outdoor track/field in the spring. Tennis and golf competition is scheduled in both the fall and spring seasons.

There are men's teams in football and soccer in the fall; basketball and wrestling during the winter; and baseball, lacrosse and outdoor track/field in the spring. Golf competition is scheduled in both the fall and spring seasons.

Men's and women's intercollegiate athletic teams compete in the National Collegiate Athletic Association (NCAA) at the Division I level and in the Big Ten Conference.

# Eligibility Requirements

Student-athletes must meet all NCAA, Big Ten and University of Maryland requirements for eligibility. The chart below serves only as a guideline to eligibility rules and does not provide complete detail. All NCAA requirements are available via http://NCAA.org.

# NCAA Continuing Eligibility and Progress Towards Degree Guidelines

| Year of Initial Collegiate Enrollment | Semester of Full-Time Enrollment | NCAA Requirements |
|---|---|---|
| Fall 2003 - present | Entering 1st semester (1st year) | Must be certified by the NCAA Eligibility Center |
| Fall 2003 - present | Entering 2nd semester | 6 degree applicable credits earned previous semester |
| Fall 2003 - present | Entering 3rd semester (2nd year) | 18 hours earned during previous regular academic year and 24 for the year earned at UMD, 6 degree applicable credits earned in previous semester, 1.8 NCAA GPA[1] |
| Fall 2003 - present | Entering 4th semester | 6 degree applicable credits previous semester, 1.80 NCAA GPA[1] |
| Fall 2003 - present | Entering 5th semester (3rd year) | declaration of degree program, 40% of degree requirement completed, 18 degree credits during previous regular academic year, 6 degree applicable credits earned previous semester, 1.90 NCAA GPA[1] |
| Fall 2003 - present | Entering 6th semester | 6 degree applicable credits earned previous semester, 1.90 NCAA GPA[1] |
| Fall 2003 - present | Entering 7th semester (4th year) | 60% of degree requirement completed, 18 degree credits during previous regular academic year, 6 degree applicable credits earned previous semester, 2.00 NCAA GPA[1] |
| Fall 2003 - present | Entering 8th semester | 6 degree applicable credits earned in previous semester, 2.00 NCAA GPA[1] |
| Fall 2003 - present | Entering 9th semester (5th year) | 80% of degree requirement completed, 18 degree credits earned in previous regular academic year, 6 degree applicable credits earned previous semester, 2.00 NCAA GPA[1] |

[1] Based on 120 credit degree program

1. Student-athletes are allowed 4 seasons of competition within 5 calendar years from the time they first enroll full-time in a collegiate institution. Some exceptions may apply.
2. Student-athletes must be enrolled full-time to be eligible to practice or compete with their team. If a student-athlete drops below full-time, they will immediately be ineligible to practice or compete, and their athletics grant-in-aid will be revoked unless otherwise approved by the Department of Athletics. Graduating student-athletes who need less than full-time hours to complete degree requirements may receive an exception to enroll in less than full-time credit hours by completing a prescribed form available in the Gossett Student-Athlete Center (GSAC) and approved by the college and certification officer.
3. Student-athletes are required to meet multiple sets of academic standards in order to maintain eligibility for athletic competition. These standards are dictated by the NCAA, Big Ten Conference, and the University of Maryland Athletics Council. In addition, student-athletes may be required to maintain standards dictated by the college of their major for either admission into a degree program, or maintaining enrollment.
4. Transfer student-athletes must meet all NCAA, Big Ten and UMD requirements in order to be immediately eligible. Please note that

in certain cases NCAA and Big Ten eligibility requirements are more stringent than UMD admissions requirements.
5. Ineligible student-athletes are not permitted to compete or travel.
6. Dismissed and later reinstated student-athletes are ineligible for competition until they meet designated grade point averages.

The Department of Intercollegiate Athletics (ICA) also sponsors a number of awards for achievement in athletics and/or scholarship. For further information, contact GSAC at 301-314-1915.

# International Student and Scholar Services

1126 H.J. Patterson Hall
Phone: 301-314-7740
http://isss.umd.edu

**Director:** Susan-Ellis Dougherty

International students and faculty receive a wide variety of services designed to help them benefit from their experience in the United States. International Student and Scholar Services (ISSS) works closely with the Office of Undergraduate Admissions on the admission of international students. ISSS services include: university sponsorship of international students, orientation programs, immigration and employment seminars and coffee hours. ISSS advisors counsel international undergraduate students concerning immigration, personal and campus life issues.

## F-1 and J-1 Status Students

The ISSS is the only office on campus authorized to sign immigration documents and advise on the following topics: extension of stay, transfers, off-campus employment authorization, practical training, and course loads.

Students with F-1 or J-1 status are responsible for following the regulations of the U.S. Citizenship and Immigration Service (USCIS) and the Department of State (DOS) pertaining to their visa status.

## Maintaining Status

- **Full-time Registration:** In order to maintain full-time student status for immigration purposes, F-1 and J-1 undergraduate students are expected to register for and complete a minimum credit load of 12 hours per semester. Pre-approval from ISSS is required if you are going to complete the semester with fewer than 12 credits.
- **Documents:** International students must have a valid passport at all times unless exempt from passport requirements. If your I-20 or DS-2109 will soon expire you should apply for an extension at least 30 days prior to the program completion date on the document. To travel outside the U.S. and re-enter as an F-1 or J-1, an advisor in ISSS must sign your I-20 or DS-2109 before you leave.
- **Health Insurance:** All undergraduate students, regardless of visa status, are required by the University Health Center to carry adequate health insurance. In addition, J-1 students must present copies of their health insurance to ISSS in order to comply with Department of State requirements.

We hope you will find the resources you need in this catalog or by visiting our office. Please contact us if we can be of any further assistance to you.

Thanks for being a part of our global UMD community!

# Letters and Sciences

1117 Hornbake Library
Phone: 301-314-8418
Fax: 301-314-9394
askltsc@umd.edu
http://ltsc.umd.edu

**Assistant Dean/Director:** Eric Van Johnson
**Associate Director:** Ashleigh Brown

Letters and Sciences is the academic home for students exploring a variety of fields before selecting a major, for Freshmen Connection students, for post-baccalaureate students taking additional course work, and for non-degree seeking students taking undergraduate courses. Letters and Sciences may also serve as the academic home for students completing requirements for entry into a Limited Enrollment Program. Letters and Sciences advisors help students to select and schedule courses, engage in academic programs, and learn about campus-wide resources. Letters and Sciences collaborates closely with college advising offices, academic departments, and programs across campus and provides a coordinated advising network that features:

## Choosing a Major

Letters and Sciences students receive information about and referral to a wide range of academic programs and services including workshops and information fairs. Letters and Sciences staff specialize in assisting students with major exploration and how to develop strategies and plans for entering Limited Enrollment Programs.

## Business Exploration Series

The Letters and Sciences *Business Exploration Series* (BES) is a multidimensional advising resource that provides LTSC students with an opportunity to explore the world of business through: exploratory seminars; business-focused introduction to the university courses; valuable leadership opportunities; and access to guidance and support from knowledgeable advisors.

## Stem Exploration Series

The Letters and Sciences *STEM Exploration Series* (SES) is a multidimensional advising resource that provides LTSC students with an opportunity to explore the world of science, technology, engineering, and mathematics through: exploratory seminars; STEM-focused introduction to the university courses; valuable research and leadership opportunities; and access to guidance and support from knowledgeable advisors.

## Interim Advising Program

Newly admitted transfer students with more than 60 credits, who were unsuccessful in gaining direct admission to a Limited Enrollment Program, receive advising and assistance from a Letters and Sciences professional staff member during their first two semesters on campus. For this group of students, the university waives the requirement that all students must declare a major by 60 credits.

## Transitional Advising Program

Currently enrolled students with more than 60 credits, who are moving between colleges due to change of interest, inability to meet benchmarks, or lack of sufficient GPA, receive advising and academic support. For this

group of students, the university waives the requirement that all students must be in a declared major after 60 credits, for one semester.

# Credit-by-Exam

Any University of Maryland student interested in credit-by-exam should visit the Forms (https://ltsc.umd.edu/forms/) page on the Letters and Sciences website.

# Pre-Law Advising

0110 Hornbake Library
Phone: 301-405-2793
prelawadvisor@umd.edu
http://prelaw.umd.edu

**Associate Director:** Gregory J. Shaffer, Esq.

Letters and Sciences offers specialized advising for students interested in law. For further information, see the section on Pre-Law Advising (p. 48) in this catalog, visit http://prelaw.umd.edu, or email prelaw@umd.edu.

The Pre-Law Advising Office within Letters and Sciences serves all current and former students at the University of Maryland interested in pursuing law school and careers in law. The program provides students with law school planning, including individual and group advising, career preparation workshops, admission information, and much more. While law schools do not require, favor, or prefer specific majors, the pre-law advisor can provide guidance concerning the choice of major. Pre-law does not serve as an undergraduate major, nor does the program require completion of a specific academic curriculum.

## Four-Year Baccalaureate Program

Most law schools require applicants to have received a bachelor's degree prior to law school enrollment. A wide variety of majors give students an excellent foundation for law school. The student should select a major and plan an undergraduate experience in which they will be successful and helps them acquire skills that are essential in preparing to perform well on the LSAT, in law school, and ultimately as a lawyer. These skills include imaginative and coherent thinking, critical reasoning, accurate and perceptive reading, and a strong command of the spoken and written language, including grammar.

In some cases, law schools will consider truly outstanding applicants with only three years of academic work, as described below. Law schools do not require the completion of prerequisite courses for admission, but they do require that the student follow one of the standard academic majors offered at the student's undergraduate institution. The LSAT is offered nine times per calendar year and is accepted by all law schools. In specific situations, other standardized tests may be accepted in lieu of the LSAT. More information on the LSAT and related admissions material may be found at http://lsac.org or on various law schools' websites.

## Three-Year Arts/Law Degree

The University of Maryland has cooperative agreements with the University of Baltimore School of Law and University of Maryland Francis King Carey School of Law. These agreements provide students at College Park, who are enrolled in any recognized major and meet certain qualifications, with the opportunity to apply to law school one year early. If accepted, the Three-Year Arts/Law Degree program allows students to begin their law school studies prior to their receipt of their baccalaureate degree. Instead, the University of Maryland, College Park awards these students their baccalaureate degree in Arts/Law upon satisfactory completion of the first year of law school. Participation in this program at the University of Maryland, College Park and application to the University of Baltimore Law School or University of Maryland Francis King Carey School of Law under this program does not guarantee admission.

This program is only available with the University of Baltimore Law School and University of Maryland Francis King Carey School of Law and may not be an appropriate choice for all students. Students who consider this program should contact the pre-law advisor for more information or view the website, at http://prelaw.umd.edu.

# Maryland English Institute (MEI)

3117 Susquehanna Hall
Phone: 301-405-8634
Fax: 301-314-9462
mei@umd.edu
http://mei.umd.edu

**Interim Director:** Jon Malone

The mission of Maryland English Institute (MEI) is to provide English language instruction and assessment at the postsecondary level for speakers of other languages who wish to learn English for academic, professional, or personal reasons. MEI fulfills its mission by providing:

- a full-time, multi-level Intensive English Program
- part-time courses for matriculated University of Maryland students
- courses for international teaching assistants
- assessment of oral communication skills of international teaching assistants
- custom-designed programs for UMD constituents and external organizations

MEI offers rigorous courses of study while providing a positive and supportive learning community and promoting cross-cultural understanding.

Two regular instructional programs are offered for admitted and prospective undergraduate and graduate students who are non-native speakers of English: a bridge program for admitted students and a full-time intensive program for admitted students or independent applicants who do not have UMD admission.

**Bridge Program: Advanced English as a Foreign Language (UMEI005):** This course is open only to students who are admitted to the University of Maryland. Before entering the course, students should already have earned one of the following minimum standardized English test scores: 6.5 on IELTS, 84 on iBT TOEFL or 110 on the Duolingo English Test (DET). Students who are admitted as bridge program students are expected to enroll in UMEI005 in their first semester and must pass the course within one year in order to become fully admitted. UMEI005 course sections usually meet four days per week, two hours per day. The program is designed to strengthen the language skills necessary for academic work at the University of Maryland. Undergraduates may enroll in two additional courses totaling eight credits at maximum while they are enrolled in UMEI005. The course is weighted at six credits, but these credits are not applicable to the university degree for UMEI005.

**Intensive English Program (UMEI011-UMEI013):** This full-time English language program is open to non-native speakers who wish to improve their English for academic, professional or personal reasons.

Students may be admitted to the Intensive English Program in two ways:

1. as a result of the University of Maryland's admissions process for degree programs, or
2. through independent application directly to MEI.

There are three intensive English sessions per year: one for fall semester, one for spring, and a seven-week session in the summer. Each consists of approximately 18 hours of instruction weekly. The intensive program offers varied levels of instruction with the opportunity to choose from several electives for part of the program. Interested students should contact MEI directly for further information before applying.

For independent applicants to MEI, satisfactory completion of the intensive program does not guarantee acceptance into UMD degree programs. Students who already have UMD admission when they enroll at MEI will matriculate into degree programs when they successfully complete the required courses.

Tuition remission cannot be applied to MEI courses.

# Maryland Global

2110 H.J. Patterson Hall
Phone: 301-405-8535
international-info@umd.edu
http://marylandglobal.umd.edu

**Associate Vice President for International Affairs:** Ross Lewin, Ph.D.

The Maryland Global hub—comprising the Office of International Affairs (OIA), Education Abroad (EA), Global Learning Initiatives (GLI) and International Student & Scholar Services (ISSS)—aims to help deepen the university's commitment to advance the global common good through learning, research and partnerships.

To stay up-to-date on the latest from Maryland Global, subscribe to our newsletter at http://go.umd.edu/mgnews (https://mailchi.mp/umd.edu/global-umd/).

## Office of International Affairs

The Office of International Affairs (OIA) works to elevate the international character of the university. We do this through facilitating global learning and research collaborations with campus and international partners; championing all Maryland Global units and campus partners in their endeavors to integrate global learning; promoting safety and security during international study or work travel; and communicating the work of the Maryland Global teams and partners.

## Global Learning Initiatives

Students interested in expanding their leadership, cross cultural and global perspectives on-campus and virtually should visit the catalog listing (p. 38) for Global Learning Initiatives, or visit http://marylandglobal.umd.edu/global-learning-all/global-learning-home/.

## Education Abroad

Students interested in opportunities to gain global competencies through a study abroad experience should visit the catalog listing (p. 36) for Education Abroad to discover more information about programs and advising services, or visit http://umd.edu/studyabroad/.

## International Student & Scholar Services

Students interested in information, services and support regarding immigration and integration programming for international students should visit the catalog listing (https://academiccatalog.umd.edu/undergraduate/campus-administration-resources-student-services/academic-resources-services/international-scholar/) for International Student & Scholar Services, or visit http://isss.umd.edu.

# National Scholarships Office

2403 Marie Mount Hall
Phone: 301-314-1289
scholarships@umd.edu
http://scholarships.umd.edu

**Director:** Francis DuVinage, Ph.D.
**Assistant Director:** Leslie Brice Bustamante, Ph.D.

The National Scholarships Office at the University of Maryland, College Park aims to provide undergraduates with the best possible information, guidance and support as they learn about and apply for national scholarships.

National scholarships are competitive, prestigious awards that provide opportunities and support for a wide range of enriching experiences, including study abroad, graduate study (in a few cases for undergraduate study also), federal employment, teaching, research, and public service. National scholarships are looking for students (with or without financial need) who are developing strong interests and goals - academic and extracurricular - and who strive to take advantage of every constructive opportunity that will help them reach their objectives. Just as each national scholarship offers a different kind of opportunity, each is also looking for a different range of strengths and interests in its applicants. If you develop a strong academic record, are thoughtful about your choices and devote yourself to activities you care about, you may well find one or more scholarship opportunities of interest to you.

The National Scholarships Office aims to make learning about and applying for national scholarships an enlightening experience. In addition to providing information about national scholarships through our website, through group presentations and through individual advising, we also provide individualized guidance and support at every stage of the application process. We invite you to visit our website and to make an appointment with us by writing to scholarships@umd.edu to learn more about national scholarships that may help you attain your goals.

# Oak Ridge Associated Universities

http://orau.org

**Vice President for Research:** Gregory F. Ball, Ph.D.
ORAU Councilor, University of Maryland

Since 1951, students and faculty of University of Maryland have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 98 colleges and universities and a contractor for the US Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education (ORISE), the DOE facility that ORAU operates, undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry, and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of underrepresented minority students pursuing degrees in science and engineering related disciplines, and details on locations and benefits can be found in the *ORISE Catalog of Education and Training Programs*, which is available at http://orise.orau.gov/about/, or by calling the contacts below.

ORAU's Office of Partnership Development seeks opportunities for partnerships and alliances among ORAU's members, private industry, and major federal facilities. Activities include faculty development programs, such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scholars Program, consortium research funding initiatives, faculty research and support programs as well as services to chief research officers.

For more information about ORAU and its programs, contact:

Gregory F. Ball
Vice President for Research
ORAU Councilor for University of Maryland

Eboni James
ORAU Corporate Secretary
Phone: 865-574-0185

Visit the ORAU home page at http://orau.org.

# Office of Multi-Ethnic Student Education (OMSE)

1101 Hornbake Library
Phone: 301-405-5616
http://omse.umd.edu

**Director:** Christopher Lester, Ed.D.

The mission of OMSE is to serve undergraduate multi-ethnic students to increase rates of matriculation, retention, graduation and overall GPA. OMSE's academic support activities include a robust, nationally-certified peer tutorial program with one-on-one sessions, as well as group review sessions, affinity group retention programs, and annual events. Our retention and leadership development programs include La Familia for first-year Latinx students; Sister to Sister for first-year multi-ethnic female students; College Success Scholars (CSS) program for Black and Latinx males, Service Learning Certificate Program (SLC) and the OMSE Academic Excellence Honor Society (OAES). The University Partners Program (UPP) allows participants to acquire professional development, leadership, and diversity skills by attending tailored workshops offered by the National Scholarships Office, University Career Center & The President's Promise, Education Abroad, and Research and Libraries. Participants receive incentives and a certificate upon successful completion of the UPP workshop series. Students have many professional opportunities in the office, including work-study positions, team leader opportunities, and graduate assistantships. As an academic unit, OMSE strives to identify and meet changing needs that affect the success of undergraduate multi-ethnic students. OMSE collaborates with other campus offices and college programs to achieve this goal, as well as to promote a positive community of learners who are sensitive to issues of diversity and social justice. The OMSE office suite contains a tutorial lab and an open workstation lab with disabilities services software. Our space provides all students with an opportunity to learn, grow, and connect within a relaxed, empowering atmosphere.

# Office of the University Registrar

First Floor, Clarence M. Mitchell, Jr. Building
Phone: 301-314-8240
http://registrar.umd.edu

**Executive Director of Enrollment Management & University Registrar:** Adrian R. Cornelius, Ed.D.

The Office of the University Registrar supports teaching and learning at the University of Maryland by maintaining the integrity of academic policies and the student information system as the perpetual stewards of our students' records from application to degree conferral. The Office of the University Registrar is committed to providing the highest level of customer satisfaction in all aspects of its operation, which includes:

- Coordinating course, final exams, and classroom scheduling
- Overseeing transfer credit, residency reclassifications, and student registration
- Managing grades and degree audits
- Maintaining students' permanent academic records
- Data custody, management, analytics, and reporting
- Producing and managing university ID cards
- Administering academic regulations and records policy (including federal FERPA law) compliances
- Enabling and executing functional oversight of adequate student records systems
- Preparing functional documentation and conducting records management training
- Managing veterans and athlete certifications
- Producing official transcripts, enrollment certifications, diplomas, and graduation verifications
- Servicing inquiries from a wide range of university and external stakeholders and customers

Detailed information on the Office of the University Registrar's services is published throughout this catalog.

# Office of Undergraduate Research

The Atlantic Building, Room 2337
our-office@umd.edu
http://our.umd.edu

**Director:** Patrick/Patricia Killion, Ph.D.

The Office of Undergraduate Research (OUR) empowers students and faculty to equitably and inclusively engage and succeed in inquiry, creative activity, and scholarship. OUR supports undergraduate students and campus partners through resources, programs, and services that advance the culture, presence, and community around undergraduate research and scholarly activities across UMD's campus. OUR's services seek to ensure equitable and inclusive access to undergraduate research

opportunities for UMD campus partners and undergraduate students of all backgrounds and levels of experience. Additionally, OUR is working to develop additional opportunities for UMD undergraduate students to earn degree-advancing academic credit and emerging forms of novel credentialing.

# Office of Student Orientation and Transition

2116 Susquehanna Hall
Phone: 301-314-8217
askorientation@umd.edu | terpfamilyorientation@umd.edu | transitionprograms@umd.edu
http://orientation.umd.edu

**Director:** Gerry Strumpf, Ph.D.

The Office of Student Orientation and Transition provides unwavering support to students from their initial steps at UMD, guiding them seamlessly along their educational journey and preparing them for successful entry into their professional lives.

## New Student Orientation

Held prior to the semester a student enrolls at the University of Maryland, the New Student Orientation program (NSO) aims to provide students with information about campus resources and services that will assist them in a successful academic and social transition to the university. During NSO, students meet with representatives from their academic college for advising and course scheduling. Undergraduate Orientation Advisors (OAs) introduce students to academic and student life at the University of Maryland, including student campus services and resources, and opportunities for involvement on campus.

## Terp Family Orientation

Parents, family members, loved ones, and supporters of new University of Maryland students are strongly encouraged to attend a one-day Terp Family Orientation program specifically designed to introduce them to the academic, social, and cultural opportunities of the university. The program aims to better prepare Terp family members and supporters for the issues that are likely to affect their students throughout their matriculation at the University of Maryland, and provide them with numerous resources and information to help their student succeed inside and outside the classroom.

## Transition Programs & UNIV Seminars

The Office of Student Orientation and Transition coordinates first year student seminar courses through the academic college called UNIV100. These courses introduce students to the world of higher education and, more specifically, to the University of Maryland. Course topics include career/major exploration, successful studying/test-taking strategies, diversity, time management, and involvement within the University of Maryland. UNIV100 seminar courses are led by a faculty or staff member and often an undergraduate Teaching Assistant. The Office of Student Orientation and Transition also oversees the UNIV100 Teaching Assistant Program where students are trained to be peer leaders and mentors in UNIV100 classrooms.

Transitioning into the university environment is complex, but so is transitioning out of that environment! UNIV362, a course for juniors and seniors called Designing Your Life After College, helps students plan their transition out of college and into their professional lives. Students gain a grasp on important financial, professional and social-emotional concepts such as budgeting, saving for retirement, negotiating salary, evaluating the total compensation of a job offer, social wellness, and building community after college. The course is offered in fall and spring semester as well as summer and winter sessions.

# Pre-College Programs

4111 John S. Toll Physics Building
Phone: 301-405-6776
Upward Bound Program: 301-405-6776
Fax: 301-314-9155
precollege@umd.edu
http://precollege.umd.edu

**Executive Director:** Georgette Hardy, Psy.D.

The University of Maryland Pre-College Programs in Undergraduate Studies is comprised a federally and state supported TRIO-Upward Bound program, as well as, the Lift Academy.

- Upward Bound Program (UB)
- Lift Academy

These programs generate the skills and motivation necessary for success in post-secondary education. They immerse high school participants in rigorous academic instruction, tutoring, counseling, and innovative educational experiences throughout the school year and during a summer residential program. Pre-College Programs are part of the Federal TRIO Programs that provide educational opportunity outreach programs designed to motivate and support students from disadvantaged backgrounds.

The UB Program is open to low-income and/or first-generation college bound high school students in grades 9 through 12, who demonstrate an academic need and want to pursue a four-year post-secondary education. Eligible students must attend target high schools in Prince George's County. High school principals, teachers, and counselors recommend students to the program.

Eligibility for the Upward Bound Program requires that students attend: Bladensburg, Central, Parkdale, or Northwestern High Schools in Prince George's County.

For students not eligible for the Upward Bound program, the Lift Academy's summer and academic year programs serve as a supplement to all students' high school experiences by providing opportunities for students to become college ready by building their academic and social skills.

# Pre-Health Professions Advising and Programs

2300 Symons Hall
Phone: 301-405-7805
http://prehealth.umd.edu

**Assistant Dean and Director:** Wendy Loughlin
**Assistant Director:** Jeff Hall
**Advisors:** Peggy Wolf, Aaliyah Flores, Brittany Gonzalez

The Reed-Yorke Health Professions Advising Office (HPAO), part of the College of Computer, Mathematical, and Natural Sciences, serves University of Maryland students and alumni interested in pursuing careers in medicine, dentistry, optometry, podiatry, and the allied health fields.

Advisors and staff in the HPAO provide students with pre-professional planning, including individual and group advising, career preparation workshops, admission information for pre-professional programs, a committee process to support their professional school applications, and much more. Pre-professional program advising provides the academic, and experiential foundations required for entrance into professional schools.

HPAO advising encompasses the fields of medicine, dentistry, optometry, podiatry, and the allied health professions - which include nursing, occupational therapy, pharmacy, physical therapy, physician assistant, and genetic counseling. The pre-health professional tracks at the University of Maryland are not degree-granting programs. They are recommended programs of study for students interested in each profession.

Students planning to pursue professional programs in medicine, dentistry, optometry, podiatry or the other allied health fields after graduation from University of Maryland must declare an academic major by 60 credits. Students who are undecided about which academic major they will declare may enter Letters and Sciences, where they will receive academic advising, but must adhere to the University of Maryland requirement that students declare a degree-granting major by the time they reach 60 credits. Pre-professional students who plan to earn a bachelor's degree should declare an academic major by 60 credits. Pre-professional students, including those interested in the allied health fields, may receive advising related to admission to professional school requirements through the Health Professions Advising Office, however the HPAO does not serve as a student's assigned academic advising unit.

Students interested in allied health professions can, and in some cases do, transfer to such programs before earning a bachelor's degree. Such students may enter Letters and Sciences, where they will receive academic advising. They should then consult with the HPAO for advising on transferring.

# Pre-Dental Hygiene

2300 Symons Hall
Phone: 301-405-7805
preprof@umd.edu
http://prehealth.umd.edu

The Pre-Dental Hygiene track prepares students for entrance into a professional curriculum for dental hygiene at institutions that offer a Bachelor of Science in Dental Hygiene. Pre-Dental Hygiene is not a pre-dental major and is not a degree-granting program at the University of Maryland, College Park. A baccalaureate degree program for a Bachelor of Science in Dental Hygiene (B.S.-D.H.) follows a 2+2 model. Students may complete two years of prerequisite courses at the University of Maryland, College Park, and then apply for admission into a professional school program which they will complete after an additional two years.

University of Maryland students also have the option of completing a four-year degree at College Park in a selected major, in addition to completing dental hygiene prerequisites, the 4+2 model. In this case, students will complete degree requirements in their chosen major, as well as the pre-dental hygiene prerequisites for entrance into a professional dental hygiene program. They will then apply for admission into a professional school where they will earn a Bachelor of Science in Dental Hygiene upon successful completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Dental Hygienists Association and the American Dental Association maintain information about individual B.S.-D.H. program prerequisites. See http://adea.org.

# Pre-Dentistry

2300 Symons Hall
Phone: 301-405-7805
preprof@umd.edu
http://prehealth.umd.edu

The pre-professional program for pre-dental students provides advising for students preparing to apply to dental school. The recommendations of American dental schools and the requirements for a baccalaureate degree at the University of Maryland form the basis for the advising.

## Four-Year Baccalaureate Program

Pre-dental students at the University of Maryland are encouraged to complete a four-year undergraduate degree, with a diversified curriculum, balancing humanities, social sciences and fine arts courses with science and mathematics courses, prior to entering dental school. Courses in which students work with their hands are also advised. Students in the four-year program must plan an undergraduate experience that satisfies the requirements of their selected major, as well as pre-dental admission requirements. Students should seek pre-dental advising early in order to create an appropriate four-year pre-dental plan. The national association ADEA (http://adea.org) provides current information for applicants.

Students who have completed AP or IB programs and received credit for courses in the sciences that are required for dental school admission are advised to read the AP/IB section of the HPAO website (https://prehealth.umd.edu/prospective-students/ap-ib-credit/) and review individual school websites for their specific policies toward this credit.

## Three-Year Arts-Dentistry Degree Program

For highly motivated and academically talented students, the University of Maryland, College Park and University of Maryland School of Dentistry offer the three-year Arts-Dentistry Program. This program gives students the opportunity to apply to the University of Maryland School of Dentistry one year early. This accelerated program requires students to complete their dental school admission requirements in three years, as they apply to dental school at the end of the second year and the beginning of their third year. Competitive students must apply and be accepted by the University of Maryland Dental School. Students accepted in the combined arts-dentistry program, receive the B.S. degree (Arts-Dentistry) after satisfactory completion of the first year at the dental school and upon the recommendation of the Dean of the School of Dentistry and approval of the University of Maryland, College Park. Participation in the combined-degree program at the University of Maryland, College Park does not guarantee admission to the University of Maryland School of Dentistry.

The HPAO strongly urges incoming students interested in this combined-degree program to identify their interest and consult with the Pre-Health advisor very early in their academic career. Please visit the website for specific details and instruction. This is a highly competitive program for top students with broad exposure to the dental field.

# Pre-Medicine (Allopathic, Osteopathic, Optometry, Podiatry)

2300 Symons Hall
Phone: 301-405-7805
preprof@umd.edu
http://prehealth.umd.edu

## Four-Year Baccalaureate Program

It is recommended that students planning to apply to medical school complete a four-year undergraduate degree prior to entrance into medical school. Students should choose an undergraduate degree program that matches their interests, and should plan how to satisfy their degree requirements and the general education requirements along with the courses in the natural and social sciences required for medical school admission. Students should seek pre-medical advising early in order to create an appropriate four-year academic plan. The HPAO website provides specific information on each of the medical programs. The national associations: AAMC (http://aamc.org) and AACOM (http://aacom.org) provide current information for applicants.

Students who have completed AP or IB programs and received credit for courses in the sciences that are required for medical school admission are advised to read the AP/IB section of the HPAO website (https://prehealth.umd.edu/prospective-students/ap-ib-credit/) and review individual school websites for their specific policies toward this credit.

# Pre-Nursing

2300 Symons Hall
Phone: 301-405-7805
preprof@umd.edu
http://prehealth.umd.edu

The Pre-Nursing track prepares students for entrance into a professional curriculum for nursing at institutions that offer Bachelor of Science in Nursing (B.S.N.) programs. Pre-Nursing is not a degree-granting program at the University of Maryland, College Park. A baccalaureate degree program for a Bachelor of Science in Nursing (B.S.N.) follows a 2+2 model also known as a traditional baccalaureate program. Students may complete two years of prerequisite courses at the University of Maryland, College Park, and then apply for admission into a professional school to complete two years of professional course work, which includes classroom, laboratory, and clinical education. Prerequisite courses are not limited to two years and can be completed in three years.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing approximately 20 to 25 credits of nursing prerequisites. This is the Second Degree or Accelerated Second Degree model. In this model, students complete degree requirements in their chosen major, as well as the nursing prerequisites for entrance into an accelerated B.S.N. or C.N.L. program. The institution offering the program confers a Bachelor of Science in Nursing or Clinical Nurse Leader (Masters of Science) upon completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Association of Colleges of Nursing maintains specific information about individual nursing program prerequisites.

**University of Maryland, College Park/University of Maryland School of Nursing Guaranteed Admission Pathway for highly motivated and academically talented students:** Admitted students to the University of Maryland, College Park are eligible to participate in a guaranteed admission pathway with the University of Maryland School of Nursing. Students may be admitted through a competitive admissions process directly into the pathway upon admission to University of Maryland, College Park or may enter the pathway after matriculation after requesting an evaluation. Students must complete prerequisite coursework maintaining a 3.25 overall GPA and a 3.0 science GPA in order to be eligible for guaranteed admission. Students may apply 16 or fewer credits to pathway prerequisite requirements earned at outside institutions, one of which can be a science course. An unlimited number of credits earned through Advanced Placement and International Baccalaureate testing can be applied to the prerequisite requirements for the nursing pathway. For more information on this program and eligibility, visit http://prehealth.umd.edu/nursing/.

# Pre-Occupational Therapy

2300 Symons Hall
Phone: 301-405-7805
preprof@umd.edu
http://prehealth.umd.edu

The Pre-Occupational Therapy track prepares students for entrance into a professional curriculum for occupational therapy at institutions that offer professional advanced degrees, including master or doctoral degrees. Pre-occupational therapy is not a degree-granting program at the University of Maryland, College Park. Community colleges and technical schools offer associate degrees or certificates to students who wish to become occupational therapy assistants. Some colleges offer bachelor degrees in occupational therapy, while others offer combined bachelor's and master's degree programs.

Students who wish to enter the occupational therapy profession may choose from several educational paths; they should thoroughly research the different options to determine the best path to their career goals. University of Maryland students have the option of completing a four-year degree at College Park, in their selected major, in addition to completing occupational therapy prerequisites. They may then choose to complete a post-bachelor certificate, Master of Science or doctoral degree in occupational therapy offered by professional schools. Some states require a degree in occupational therapy prior to approving licensure to work as an occupational therapist in that state. The certificate cannot substitute for a degree. Students should become familiar with the laws of the state(s) in which they wish to work if they choose to pursue a certificate rather than a master's or doctoral degree. Most occupational therapy programs require some health-care experience in the occupational therapy field.

Prerequisites may change and can vary from school to school; students are strongly encouraged to contact professional programs for the most current requirements. The American Occupational Therapy Association maintains specific information about individual program prerequisites. See http://aota.org.

# Pre-Pharmacy

2300 Symons Hall
Phone: 301-405-7805
preprof@umd.edu
http://prehealth.umd.edu

The Pre-Pharmacy track prepares students for entrance into a professional curriculum for pharmacy at institutions that offer a Doctor

of Pharmacy (Pharm.D.) degree program. Pre-Pharmacy is not a degree-granting program at the University of Maryland, College Park. A Pharm.D. degree program follows a 2+4 model in which students complete two years of prerequisite courses at the University of Maryland, College Park and then apply for admission into a professional pharmacy school to complete four years of professional coursework, which includes classroom, laboratory, and clinical education. Prerequisite courses are not limited to two years and can be completed in three years.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing pharmacy school prerequisites, a 4+4 model. In this model, students complete degree requirements in their chosen major, as well as the Pre-Pharmacy prerequisites for entrance into a professional pharmacy program. The institution offering the program confers a Pharm.D. degree upon completion of the program.

Prerequisites may change and can vary from school to school; students are strongly encouraged to contact professional programs for the most current requirements. The American Association of Colleges of Pharmacy maintains information about individual Pharm.D. program prerequisites. See http://aacp.org.

# Pre-Physical Therapy

2300 Symons Hall
Phone: 301-405-7805
preprof@umd.edu
http://prehealth.umd.edu

The Pre-Physical Therapy track prepares students for entrance into a professional curriculum for physical therapy at institutions that offer a doctoral degree. Pre-Physical Therapy is not a degree-granting program at the University of Maryland, College Park.

Most physical therapy schools now confer only doctoral degrees, Doctor of Physical Therapy (D.P.T.). Currently, the accepted, entry-level clinical degree to practice as a physical therapist is the D.P.T. The length of time to complete the D.P.T. coursework is usually three years. University of Maryland students interested in attending a D.P.T. program need to complete a four-year degree in their selected major in addition to completing physical therapy prerequisites. The coursework required to enter a Doctor of Physical Therapy (D.P.T.) degree program varies depending on the professional schools to which the student intends to apply and the expected year of matriculation into the professional phase of physical therapy. Most physical therapy schools also require some health-care experience in the physical therapy field.

Several educational paths exist for students who wish to enter the physical therapy field. Students are encouraged to thoroughly research this profession and determine which educational path best leads to their particular career goals.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Physical Therapy Association as well as the Physical Therapy Centralized Application Service maintains information about individual program prerequisites. See http://apta.org and/or http://ptcas.org.

# Pre-Physician Assistant

2300 Symons Hall
Phone: 301-405-7805
preprof@umd.edu
http://prehealth.umd.edu

The Pre-Physician Assistant (P.A.) program prepares students for entrance into a professional curriculum for physician assistant at institutions that offer a Master's degree in this field. Pre-Physician Assistant is not a degree-granting program at the University of Maryland, College Park. At the University of Maryland, students may complete the necessary prerequisite courses required by the professional physician assistant programs to which they will be applying. Pre-Physician Assistant typically follows a 4+2 model (though some professional programs may exceed 2 years). Students complete a four-year degree at College Park in their selected major, in addition to completing physician assistant prerequisites in areas including but not limited to science, psychology, and statistics. Most physician assistant schools also require health-care experience, many preferring applicants to have worked directly with patients. The institution offering the program confers a master's degree upon completion of the physician assistant program.

Due to differing prerequisite requirements amongst P.A. programs, students are encouraged to thoroughly research this profession and determine which educational path best leads to their particular career goals. Students should check the particular prerequisites of the P.A. educational programs that interest them.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Academy of Physician Assistants as well as Physician Assistant Education Association maintains information about individual program prerequisites. See http://aapa.org and/or http://paeaonline.org.

# Other Health Programs

2300 Symons Hall
Phone: 301-405-7805
preprof@umd.edu
http://prehealth.umd.edu

The pre-biomedical science research and medical technology program prepares students for entrance into the professional curriculum for medical technologists and biotechnologists. Pre-Medical Technology is not a degree-granting program at the University of Maryland, College Park.

A degree program for a Bachelor of Science in Medical Technology (B.S.-M.T.) generally follows a 2+2 model. Students may complete two years of prerequisite courses at the University of Maryland, College Park and then apply for admission into a professional school to complete two years of professional coursework, which includes classroom, laboratory, and clinical education.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing medical technology prerequisites, the 4+2 model. In this model, students complete degree requirements in their chosen major, as well as the pre-medical technology prerequisites for entrance into a professional medical technology program. The institution offering the program confers a Bachelor of Science in Medical Technology degree on completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Society of Clinical Pathologists and the National Accrediting Agency for

Clinical Laboratory Sciences maintain information about individual B.S.-M.T. program prerequisites.

# Pre-Law Advising Program

0110 Hornbake Library
Phone: 301-405-2793
prelawadvisor@umd.edu
http://prelaw.umd.edu

**Associate Director:** Gregory J. Shaffer, Esq.

The Pre-Law Advising Office within Letters and Sciences serves all current and former students at the University of Maryland interested in pursuing law school and careers in law. The program provides students with law school planning, including individual and group advising, career preparation workshops, admission information, and much more. While law schools do not require, favor, or prefer specific majors, the pre-law advisor can provide guidance concerning the choice of major. Pre-law does not serve as an undergraduate major, nor does the program require completion of a specific academic curriculum.

For more information, see this section of the catalog (p. 41).

# Pre-Transfer Advising

0110 Hornbake
Phone: 301-405-2793
pretransferadvising@umd.edu
http://pretransferadvising.umd.edu

**Associate Dean:** Lisa Kiely, Ph.D.
**Assistant Directors:** Megan Cleaver, Leah Howell

The Pre-Transfer Advising Program promotes academic success and excellence by assessing the readiness of students who wish to transfer to UMD. Pre-Transfer Advising assists students in estimating time to degree completion and advises on which courses to take prior to transfer. Advisors also serve as a resource for community college staff.

# Student Success Office

0110C Hornbake
rr-admit@umd.edu
http://studentsuccess.umd.edu

**Associate Dean:** Lisa Kiely, Ph.D.
**Assistant Director:** Paulanne Walker

The Student Success Office is a clearinghouse for services and resources to assist students in the completion of their undergraduate degrees. This includes:

- Coordinating re-enrollment
- Centralizing tutoring resources
- Managing data from exiting students
- Providing leadership on other retention initiatives

**For more information, please see** http://studentsuccess.umd.edu**.**

# Teaching and Learning Transformation Center (TLTC)

0124 Edward St. John
Phone: 301-405-9356
http://learn.umd.edu

**Assistant Vice President for Academic Technology and Innovation:** Marcio Oliveira, Ph.D.

The TLTC Learning Success team inspires curiosity and a culture of reflective learning by supporting students in difficult courses, promoting effective learning practices, and mentoring students to become learning leaders.

Register to participate in our programs & events at go.umd.edu/learn. Follow us @TLTCTERPS on Instagram.

## Guided Study Sessions (GSS)

http://tltc.umd.edu/gss/

The GSS program offers peer-led collaborative study sessions for students enrolled in historically difficult courses. In GSS, students get together with classmates to organize notes, discuss important concepts, solve practice problems, develop study strategies, and test themselves before the professor does. Sessions are held for 50 minutes twice a week and are informal—students can drop in for as many or as few as they would like. For a full schedule of courses and session times, please visit our website.

GSS Leaders are undergraduate students who previously took their assigned course and earned an A. They attend course lectures for the second time alongside the rest of the class, hearing what they hear and reading what they read. To help put everything in perspective, GSS Leaders plan their sessions to guide students through difficult concepts in an active learning environment.

## Math Success Program

http://tltc.umd.edu/mathsuccess/

The Math Success Program provides free, drop-in math coaching services to all students in many math and math-based courses; Monday through Thursday, 6 p.m. - 9 p.m. in the Edward St. John Building (ESJ) and virtually on Sunday, 6 p.m. - 9 p.m.

Through positive, peer-led small group collaboration, math coaches facilitate the review and practice of math problems and concepts, as well as, the development of problem solving and critical thinking skills.

## Academic Coaching

http://tltc.umd.edu/learning-assistance/

The TLTC Learning Success Team provides free, 30-minute, one-on-one academic coaching sessions for UMD students. Our coaching sessions are collaborative, and you set the agenda. Whether you are looking to improve your learning strategies, develop an effective study plan, or survive/ace a course, our team is here to support your academic success.

# Tutoring

The University of Maryland offers tutoring resources for all students. The following programs offer tutoring for many first- and second-year courses

and courses in writing, communication, math, and General Education Fundamental Studies classes. Additional tutoring resources can be found at http://tutoring.umd.edu.

- The Academic Success and Tutorial Services (https://umdtutoring.mywconline.com) initiative of the Academic Achievement Program (2204 Marie Mount Hall) is a resource for all students, with a specific focus on serving students in "high-risk" courses—those with historically high DWF rates.
- The Department of Mathematics (https://www-math.umd.edu/) and Department of Resident Life (http://reslife.umd.edu/) both offer math tutoring in a variety of undergraduate courses.
  - Math Success Program (https://tltc.umd.edu/students/get-help-class/math-success-program/)
  - Department of Mathematics tutoring schedule (0301 Math) (http://www-math.umd.edu/math-tutoring-schedule.html)
  - Department of Mathematics problem solving schedule (1104 Math) (https://www-math.umd.edu/problem-solving-help-sessions.html)
  - MATLAB tutoring schedule (0504 Parking Garage II) (http://www-math.umd.edu/math-tutoring-schedule.html)
  - MathNet Test Bank (https://www-math.umd.edu/testbank.html)
- The Grammar Hotline (https://english.umd.edu/writing-programs/writing-center/student-resources/) can answer questions on word choice, punctuation, sentence structure, or proper citation.
- The Office of Multi-ethnic Student Education - OMSE (https://omse.umd.edu/tutoring/) (1101 Hornbake Library) offers a variety of services and programs to enhance the learning experiences and promote the academic success of undergraduate students.
- The Oral Communication Center (https://communication.umd.edu/occ/) helps students with speaking assignments and hosts workshops on topics such as listening, speaking anxiety, and presentation delivery. The center is staffed by trained undergraduate peer consultants.
- The Writing Center (https://english.umd.edu/writing-programs/writing-center/) (1205 Tawes Hall) is located in the Department of English and provides opportunities for undergraduate students to improve writing and thinking skills in their academic work, and also in preparation for their respective careers. In a comfortable and supportive atmosphere, trained consultants with a variety of majors assist writers individually at all stages of the composing process.

# Student Programs and Services


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# Accessibility and Disability Service

0106 Shoemaker Building
4281 Chapel Lane
Phone: 301-314-7682
adsfrontdesk@umd.edu
http://ads.umd.edu

**Director:** Tessa Cahill

At the University of Maryland's Accessibility and Disability Service (ADS), we go beyond merely checking boxes. We recognize that each student's disability-related access needs are unique. Instead of providing one-size-fits-all accommodations, we tailor our approach to each individual's specific concerns. Our ultimate aim is to create an environment where students with disabilities can fully participate, engage, and thrive. Together, we're setting a new standard for access and inclusion in higher education.

## What is a Disability?

Anyone who has a documented disability is eligible to apply for reasonable accommodations. The ADA Amendments Act of 2008 defines a disability as a physical or mental impairment that substantially limits one or more major life activities. Disabilities can vary widely, some might be easily recognizable while many are invisible. We aim to celebrate each student and recognize the distinctive qualities and strengths they introduce to our community.

## Who Do We Work With?

At ADS, we work directly with all students with disabilities — undergraduate, graduate, transfer, or visiting— to ensure they have access to equal opportunities in academic, housing, or student work settings.

## What Areas Can Reasonable Accommodations Be Implemented In?

Accommodations can be implemented in a variety of different settings. These adjustments are designed to meet individual needs without altering university standards.

Examples of where accommodations are used include but are not limited to the following areas:

- Academic courses
- Experiential learning (i.e. field work, clinical rotations, internships, etc.)
- Research (i.e. capstone, thesis, dissertation, etc.)
- On-campus housing
- Student employment (i.e. hourly jobs, assistantships, etc.)

## How to Get Started?

It's important to note that disclosing your disability to UMD officials does not automatically set up accommodations. Please visit the Getting Started (https://ads.umd.edu/getting-started/) page for detailed information on how to initiate the accommodations process and register with ADS.

Our method for establishing accommodations is individualized. We'll discuss your specific needs, review relevant documentation, and may collaborate with course instructors or departments when necessary. All accommodations provided will be consistent with the objectives of our academic programs.

IMPORTANT: Lack of documentation will not prevent us from meeting with you. Any student can meet with our office to discuss their situation and explore options for support. We can also help you understand how to get documentation if needed.

If you have questions about the process or are uncertain about your eligibility, please contact us at 301-314-7682 or email adsfrontdesk@umd.edu. Additional information can also be found on our website (https://ads.umd.edu/).

# ADA Compliance / ADA/504 Coordinator

Phone: 301-405-2841
Fax: 301-314-9992
adacoordinator@umd.edu
http://accessibility.umd.edu

**ADA/504 Coordinator:** Emily Singer Lucio

The ADA/504 coordinator's office guides the university's efforts to move beyond compliance and toward seamless access. As the university's focal point for disability-related initiatives, the ADA/504 coordinator's office collaborates with university offices, government agencies and advocacy groups to inform decision-making and ensure university compliance with state and federal mandates. The office addresses

accessibility issues and reports of disability-based discrimination on campus.

# Adele H. Stamp Student Union - Center for Campus Life

Adele H. Stamp Student Union
Phone: 301-314-DESK
http://stamp.umd.edu

**Director:** Marsha Guenzler-Stevens, Ph.D.

The Adele H. Stamp Student Union - Center for Campus Life is the heart of UMD. More than 17,000 students, faculty, staff members, and campus guests visit STAMP daily to take advantage of its services, programs, and facilities. Our mission is to create and sustain a student-centered environment that promotes academic success and personal development; serves as a safe and inviting campus center; and is characterized by a strong commitment to multiculturalism, excellence, and a positive work environment.

STAMP offers lounge and study areas, a variety of information services, recreation and leisure activities, leadership development programs, multicultural involvement and community advocacy programs, arts and entertainment, food and retail outlets (including the official University Book Center), and reservable space for numerous educational events, conferences, and more. The building's total square footage is more than 300,000 square feet.

## Adele H. Stamp Student Union - Center for Campus Life Hours

STAMP is open Monday through Thursday, 7 a.m. to midnight; Friday, 7 a.m. to 1:30 a.m.; Saturday, 8 a.m. to 1:30 a.m., and Sunday, 11 a.m. to midnight during the academic year with modified hours during the summer and university breaks. For more information, see http://stamp.umd.edu.

- Leadership and Community Service-Learning (https://stamp.umd.edu/lcsl/leadership_community_servicelearning/)
- Engagement (https://stamp.umd.edu/engagement/engagement/) and Activities (https://stamp.umd.edu/activities/senior_experience/)
- Multicultural Involvement and Community Advocacy (https://stamp.umd.edu/mica/multicultural_involvement_community_advocacy/)
- Memorial Chapel and Interfaith Programs (https://stamp.umd.edu/centers/memorial_chapel/)

## Food and Retail Outlets

- M&T Bank and ATM (ground floor), with six other ATMs located on campus
- Copy Services (first floor), offering printing and copying, 301-405-2679
- University Book Center (on two floors: ground and basement level), 301-314-BOOK
- Food Services:
  - Chick-Fil-A (301-314-6568)
  - Coffee Bar (301-314-CAFE)
  - Hibachi San Japanese Grill (301-405-7620)
  - Maryland Dairy (301-405-1415)
  - Moby Dick (301-405-6531)
  - Panda Express (301-314-6111)
  - Panera Bread (301-314-2025/301-314-2033)
  - Qdoba (301-314-6569)
  - Subway (301-266-7827)
  - Union Pizza (301-405-7386)
- The UPS Store, a full-service postal and packaging facility, 301-314-9982
- Ticket Office, offering campus performance tickets, 301-314-TKTS
- Union Shop, featuring snacks, sodas, and sundries, 301-314-7467

## Information Services

- Information Center located on the first floor, 301-314-DESK or visit http://stamp.umd.edu/event_guest_services/information_desk/
- Display cases located throughout the building

## Recreation and Leisure

TerpZone, including full-service bowling lanes, "Cosmic Bowling", billiard tables, video games, and three big-screen TVs, 301-314-BOWL or visit http://stamp.umd.edu/TerpZone/.

## Reservable Space

STAMP offers meeting rooms that accommodate groups from 8 to 1,000 people. For reservations, or catering information, contact the Event and Guest Services Office, 301-314-8488 or visit http://stamp.umd.edu/event_guest_services/.

## Student-Sponsored Programs

- Student Entertainment Events (SEE), is the principle student programming board responsible for a student-directed program board responsible for producing and supporting events that entertain, enhance, and inspire a diverse campus culture, 301-314-8359 or visit http://see.umd.edu.
- Graduate Student Government, 301-314-8630
- Student Government Association, 301-314-8329

## Studio A and Stamp Gallery

- Studio A, a non-credit art center offering art, dance, music and creative classes, events, and workshops for self-expression and self-development or visit http://stamp.umd.edu/StudioA/
- STAMP Gallery, located on the first floor, 301-314-ARTS or visit http://stamp.umd.edu/Stamp_Gallery/

# Alumni Association

Samuel Riggs IV Alumni Center
Phone: 301-405-4678 or 800-336-8627
alumni@umd.edu
http://alumni.umd.edu

**Executive Director, Alumni Association:** Amy Eichhorst

The University of Maryland Alumni Association inspires lifelong connections with a global network of nearly 414,000 alums. Through dynamic programming, membership benefits and more than 50 regional, affinity and academic networks, the Alumni Association serves as a

portal through which Terps can connect and engage with the university and each other.

The Alumni Association provides hundreds of programs and initiatives, from events across the nation to virtual professional development and mentorship. The Alumni Association also hosts Terrapins Connect in conjunction with the Career Center to provide an exclusive online mentorship and networking platform for alumni, students and faculty/staff.

Thousands of alumni attend Alumni Association programs each year, including game watches, networking, industry-focused and members-only events. Alumni Association members support and elevate the university and its current and future students, in addition to receiving exclusive benefits.

# Bias Incident Support Services (BISS)

2417 Marie Mount Hall
Phone: 301-405-0980
BiasSupport@umd.edu
http://biassupport.umd.edu

**Director:** Brian Medina (ze/hir/hirs (https://pronouns.org/ze-hir/))

Bias Incident Support Services (BISS) is a team within the Office of Diversity and Inclusion that is charged with addressing hate-bias incidents targeting UMD students, faculty and staff. The program responds to incidents with trauma-informed care, collects and shares data about hate-bias incidents through the Bias Dashboard (https://umd.edu/bias-reporting-dashboard/), and educates the campus community about identity-based trauma and its impact. If you have been affected by bias, you can submit a bias report (https://cm.maxient.com/reportingform.php?UnivofMaryland&layout_id=50) to BISS or email BiasSupport@umd.edu to receive compassionate care.

# Department of Fraternity and Sorority Life

0221 Stamp Student Union
Phone: 301-314-7172
Fax: 301-314-9393
http://fsl.umd.edu

**Interim Directors:** James McShay, Ph.D. & Kevin Pitt

Office Hours: Monday - Friday, 8:30 a.m. - 5 p.m.

The Department of Fraternity and Sorority Life oversees all recognized social and cultural interest fraternities and sororities. Staff within the department provide advising and support for the 55+ organizations, student leaders, and four student governing councils: the Interfraternity Council (IFC), the Multicultural Greek Council (MGC), the National Pan-Hellenic Council (NPHC) and the Panhellenic Association (PHA). The department also manages the 20 university-owned fraternity and sorority houses and The Agora, which is a pramming space for students within our MGC and NPHC chapters. Additionally, the department provides resources for the off-campus fraternity and sorority houses.

# Dining Services

1109 South Campus Dining Hall
Dining Plans: 301-314-8068
Student Employment: 301-314-8058
umfood@umd.edu
http://dining.umd.edu

**Interim Director of Dining Services:** Joe Mullineaux

The Department of Dining Services is proud to have achieved national recognition for nutritional programming and sustainability impacts. We are a self-operated and self-supported campus dining program, active participants in the University of Maryland community, a supporter of campus academic endeavors, and providers of delicious, popular and nutritious food in welcoming settings every day. Dining plans give resident students convenience, flexibility and value, and unlimited access to tasty, healthy food.

Dining halls welcome the entire university community, but our first priority is to support academics for resident Terrapins. We are open every day before classes start and remain open until the classes are finished for the day.

- At South Campus and Yahentamitsi Dining Halls, breakfast starts at 7 a.m. Monday through Friday, 10 a.m. weekends. Service runs straight through until 9 p.m. every night. In the Denton Community, 251 North serves breakfast starting at 8 a.m. every day. Service is continuous until 10 p.m. Monday through Thursday and 7 p.m. Friday, Saturday and Sunday.
- Dining halls feature over 38 culinary stations serving hearty breakfasts, classic lunch and dinner entrées with fresh sides, crisp leafy salads, ancient grains, custom-built pasta dishes, stuffed-to-order quesadillas, hot and cold wraps and sandwiches, breakfast all day and rotisserie meats with fresh vegetables.
- State of the art equipment provides greater flexibility and allows our culinary team to experiment with new cooking techniques and try new recipes and flavors. Our menus include customized made-to-order food cooked in display kitchens featuring counter seating, booths and outdoor dining!
- You will find international food, smoothies, dedicated vegan stations, a Mongolian grill, fresh-baked desserts, soft serve ice cream and much more. We are your campus kitchen - come on in, say hello, get to know us and make yourself at home.

In addition to the three dining halls that serve as gathering places for our community, we offer additional dining options across campus, close to academic buildings and residence halls.

- Popular franchises in The Stamp and Kirwan food courts, and 10 cafés in academic buildings provide additional options for times when you would rather grab fresh carryout close to class or when you want a favorite from a brand name quick service spot.
- Markets in resident communities offer room snacks, fresh carryout, school supplies and toiletries. They have grills that serve student late night favorites until after midnight every night. South Market serves Starbucks coffee and espresso beverages. The market shops carry a surprisingly wide range of useful and interesting things to make your room a better place to be.

- Mulligan's Grill and Pub on the University Golf Course offers clubhouse cuisine, a relaxing atmosphere, gracious hospitality, and sweeping views of the fairways at lunch and for catered events.

For a complete list of locations, hours, menus, and detailed information about our program visit http://dining.umd.edu.

## Resident Dining Plans

Our primary responsibility to the campus is to serve delicious, safe, healthy and popular food to resident students. We serve resident students using the "Anytime Dining" style of service. The Anytime Dining program gives resident students unlimited access to the dining halls from morning through evening, seven days a week. Participants come to any dining hall any time we're open and choose anything we're serving. Resident students return any number of times, any day of the week, all semester long. Our goal is to feed you, and feed you well.

Students who live in traditional, on-campus residence halls select one of four Seven-Day Resident Dining Plans:

- Base – Unlimited access to dining halls from move-in to the last day of finals
- Base Plus – Unlimited access to dining halls from move-in to the last day of finals + 200 Dining Dollars
- Preferred – Unlimited access to dining halls from move-in to the last day of finals + 300 Dining Dollars
- Premium – Unlimited access to dining halls from move-in to the last day of finals + 400 Dining Dollars

Each plan also includes complimentary Guest Passes - Base Plan, two per semester; Base Plus, four; Preferred, six; Premium, eight. Each guest pass is an opportunity to bring someone to a dining hall for an all-you-care-to-eat meal and share a great Maryland Dining experience.

Dining Dollars on your UMD ID card make it super easy to stop in at a variety of campus locations. While you have unlimited access to dine in three great dining halls, you may find that you're not near a dining hall or you might be off campus at meal time - and there will be times when you want to eat on the go. Use Dining Dollars for fresh carryout, room snacks and supplies.

Dining Dollars save you money - you get a significant discount when you buy Dining Dollars as part of your 7-Day Dining Plan and there is no tax on the sale when you use them. Dining Dollars spend just like cash in any permanent campus dining location.

Use Dining Dollars in campus convenience shops to get things for your room like school supplies, toiletries and late night snacks. Swing by any of the cafés on campus for a fresh grab-n-go sandwich, salad, sushi, or a Starbucks! Check out the brand-name franchises in the Stamp Student Union and Kirwan Food Court that accept Dining Dollars. Every permanent Dining Services location accepts Dining Dollars. Look for the logo near the register.

We recommend the Preferred Plan – it includes 300 Dining Dollars to use around campus all semester. That's about 15 to 20 Dining Dollars a week!

## Optional Dining Plans

We are pleased to welcome all students, faculty, staff and guests to every dining hall, restaurant, shop and café on campus! Members of the campus community can become members of the dining plan program in several ways:

- Connector Dining Plans - Running a kitchen is hard work. You can purchase a block of 25, 50, 100 or 150 Maryland Dining experiences at a significant discount - that works out to between one-and-a-half and nine delicious and nutritious all-you-care-to-eat meals a week for under $10 each! Ensure that you have some great meals on-campus; enjoy easy access to fresh, well-cooked food.
- 5-Day and 7-Day Dining Plans - The 5-Day Plan provides unlimited access to dining halls Monday through Friday. 7-Day Plans extend that access to include weekends. We've got you covered!
- Blocks of Dining Dollars - accepted at all permanent Dining Services locations. When you purchase Dining Dollars, you get a discount! They spend like cash and there is no tax on the sale when you use Dining Dollars.
- And remember, we accept credit, debit and Terrapin Express at all locations.

## Terrapin Express

1109 South Campus Dining Hall
Phone: 301-314-8068
terpexp@umd.edu
http://terrapinexpress.umd.edu

Terrapin Express is a prepaid debit account: money you set aside to use at over 50 locations across campus including the University Book Center and University Health Center. Cashiers, copiers, printers and washing machines use your UMD ID card to access account information. To activate your account, visit the website listed above. Funds roll over from semester to semester; you can add additional funds at any time. For details and a complete listing of participating locations go to http://dining.umd.edu and select Terrapin Express.

# Engagement and Activities

The mission of Student Activities and Student Engagement areas is to support and complement the university's academic mission and enhance students' educational experience through exposure and participation in social, cultural, recreational, leadership, intellectual, and governance activities.

## Activities Area

0208 Adele H. Stamp Student Union
Phone: 301-314-7158
http://stamp.umd.edu

**Assistant Director of Student Activities:** Joseph Calizo

**Stamp Programs and Student Entertainment Events (SEE)** - Staff produce programs which are campus traditions such as New Student Welcome and Homecoming. Advisement of the Student Entertainment Events (SEE), student-led program board, is also a part of this area.

**Student Organization Resource Center (SORC)** - This area has two primary functions with regard to student organization support. SORC Development manages the student organization registration process, and other programmatic efforts to assist student groups meet their goals such as the TerpLink Event process, an on-line resource for event-planning. Staff also manage the operations of the Student Involvement Suite, a facility for student group activity. SORC Finance assists groups

with access and spending of the Student Activity Fee. Both areas also provide advisement to the Student Government Association.

**Student Legal Aid Office** - Staff members, which include an attorney, provide legal advice to undergraduates as well as advocacy to students charged in the university judicial process. The office is located on the third floor of the South Campus Dining Hall.

## Engagement Area

0110 Adele H. Stamp Student Union
Phone: 301-314-7174
http://stamp.umd.edu

**Assistant Director of Student Engagement:** Laura McCulley

Staff members work directly with some distinct and growing student constituencies on campus. The staff are available as resources for students and encourage student involvement in all areas of campus. The areas served by the engagement team include **Graduate Student Life, Veteran Student Life, Transfer and Off-Campus Student Life, Transfer 2 Terp** (a learning community for students who have transferred from local community college), and **Immigrant and Undocumented Student Life.** Students are engaged and integrated into the campus community through social, educational, and outreach programs to assist in the transition to collegiate life.

# Housing: Resident Life

1102 Annapolis Hall
Phone: 301-314-2100
reslife@umd.edu
http://reslife.umd.edu

**Director of Resident Life:** Dennis Passarella-George

University of Maryland students engage, learn, and discover together, and the Maryland Residential Experience provides students with a tremendous opportunity to magnify those experiences while living at the center of everything needed to have an enriching, meaningful, and engaging college experience.

The Division of Student Affairs' Department of Resident Life manages the residence halls and creates opportunities for all residents to thrive and grow. We promote growth and learning, cultivate connections through community, and create safe, inclusive residential environments to foster a sense of belonging for all. Living on-campus offers Terps convenience, flexibility, affordability, and 24/7 support while immersed in the Terrapin Community!

A vital and fundamental component of a student's UMD education is beginning their Maryland experience by living on campus. As part of their four-year housing plan, all undergraduate students should begin their University of Maryland experience by living in the residence halls their first two years.

While living on campus is not required, nine of every ten students in Maryland's undergraduate first-year class make the choice to live in the residence halls. More than 90 professional and graduate staff and over 500 undergraduate student employees are available to support on-campus students and to help ensure a safe, engaging, and enjoyable living environment.

The on-campus housing program is home to more than 12,500 undergraduate students living in university-owned residence halls and public-private partnership apartment communities. Thirty-nine residence halls are home to approximately 9,500 undergraduate students. Four different living styles are available to students who live in the residence halls: traditional halls, semi-suites, suites, and apartments. Within traditional housing, where most first-year residents live, single, double, triple, and quadruple room occupancy exists. All rooms have a data jack for each student and wi-fi capability. One telephone jack is provided in each room.

Our nationally acclaimed Living-Learning Programs include Advanced Cybersecurity Experience for Students (ACES), BioFIRE Living & Learning Center, Carillon Communities, CIVICUS, College Park Scholars, Design Cultures and Creativity, Flexus: The Dr. Marilyn Berman Pollans Women in Engineering Living & Learning Community, Gemstone, Honors Global Communities, Honors Humanities, Integrated Life Sciences, Jiménez-Porter Writers' House, Language House, University Honors, Virtus Men in Engineering Program, and Interdisciplinary Business Honors. All of these programs add to the diversity and quality of residence hall housing options.

First-year students are guaranteed on-campus housing provided they complete their Residence Hall Housing and Dining Services Agreement, Enrollment Confirmation, and enrollment deposit by May 1 (December 15 for spring semester). Transfer students who want to live on campus should also complete these actions and will be allotted housing in the residence halls on a space-available basis. Students may apply for housing without confirming university enrollment. The Residence Hall Housing and Dining Agreement will be canceled if a student does not enroll at UMD full-time. A $50 housing application fee is assessed upon submission of the Housing Agreement.

In addition to the university-owned residence halls, Capstone On-Campus Management (COCM) operates The Courtyards (CTY) and South Campus Commons (SCC) apartment communities, which are located on university land and house upper-class undergraduate students. The university's Off-Campus Housing Services Office also offers support and services for students seeking alternative housing options in and around the greater College Park area.

Join a diverse group of talented peers from across the country and around the world who have chosen the on-campus Maryland Residential Experience. Live here and be within steps of resources and support on your path to graduation!

# Leadership and Community Service-Learning

Center for Campus Life
1110 Adele H. Stamp Student Union
Phone: 301-405-9044
http://stamp.umd.edu/lcsl/

**Assistant Director:** Courtney Holder

Leadership & Community Service-Learning (LCSL) engages students in experiential and community-based learning to foster socially responsible leadership. Through LCSL's student leader roles, developmental institutes and conferences, on-going volunteer opportunities in the local community, and dialogues on our world's grand challenges, all UMD students can find a way to build their skills, contribute to the local community, create positive social change, and ignite their inner leader.

## Alternative Breaks

http://alternativebreaks.umd.edu

The Alternative Breaks program engages students in short-term service-learning immersion experiences that address social issues in local, national, and international communities. Alongside our long-term mutually beneficial community partners, students develop as socially responsible leaders through direct service and action, education and reflection. The Alternative Breaks program offers a number of student-led travel opportunities during winter, spring and summer breaks focusing on topics such as accessible and affordable housing, environmental justice, food security, and educational equity.

## Maryland Mentor Corps

http://stamp.umd.edu/lcsl/programs/maryland_mentor_corps/

Maryland Mentor Corps provides high quality mentoring programs that enrich learning opportunities for college students, elementary school students, and the local community. The Maryland Reading Program (working with first and second graders on reading and writing skills) and the Maryland Math Program (working with fourth graders on math skills) operate in collaboration with Prince George's County Public Schools (PGCPS). The Maryland Family Literacy Program (working with adults on English-language acquisition) and the LSF K-12 tutoring program (working with multiple grade levels on all subjects) operate in collaboration with the Latino Student Fund. Finally, the Higher Achievement Mentoring Program works with middle schoolers on reading, writing, speaking, and listening skills in collaboration with Higher Achievement.

## Maryland LEAD

http://stamp.umd.edu/mlead/

Maryland Leadership Education and Development Program engages students in leadership experiences that complement academic, co-curricular, career, and community engagement opportunities. Through peer-led institutes, conferences, and retreats, the Maryland LEAD Program develops the skills necessary to practice socially responsible leadership. The program recognizes leadership as an ability that can be developed in all people, opening doors for individual growth and social change. Signature programs include Terrapin Leadership Institute (TLI) and Maryland Leadership Conference.

## Leadership Studies

http://education.umd.edu/leadership-studies-program/

The Leadership Studies Program is a transdisciplinary academic program offering both minor and certificate options, as well as a variety of elective courses on leadership theory and practice open to all undergraduate students at UMD. Any student, regardless of major is welcome to pursue a minor or certificate in Leadership Studies; our students represent every academic college/school at the University of Maryland! The program promotes leadership learning and development by educating students for and about leadership in a complex world. Valuing global citizenship and civic education, we aim to prepare students to effectively engage in leadership in both formal and informal ways within campus, local, national, and global contexts.

## Services 24/7

http://services247.umd.edu

Services 24/7 is an online vital resource center with nearly 300 nonprofit organizations and community resources from Prince George's County, Montgomery County, and Washington, D.C. The database connects residents of these areas with the resources they need to enhance their quality of life and allows UMD students, faculty, and staff to find volunteer opportunities. Join today by creating your free account at http://services247.umd.edu.

## Terps for Change

http://stamp.umd.edu/lcsl/programs/terps_change/

Terps for Change is an eight-week, semesterly program in which student volunteers, led by student coordinators, visit a local site to perform hands-on community service once a week. Available service projects range from after-school tutoring to sustainable farming to assisting a community food pantry and more. In order to engage more deeply with and better undersand systemic inequities, volunteers also participate in weekly facilitated dialogues around a variety of social issues.

## Terps Vote

http://terpsvote.umd.edu

TerpsVote is University of Maryland's nonpartisan student voter engagement initiative. TerpsVote organizes campus-wide information sessions, speaker series, events, tabling, social media campaigns, student interns and ambassadors aimed at increasing student voter turnout and civic education.

## LGBTQ+ Equity Center

2218 Marie Mount Hall
Phone: 301-405-8720
lgbtq@umd.edu
http://lgbtq.umd.edu

**Director:** Kristopher A. Oliveira, Ph.D.
**Associate Director:** Shantala Thompson, MA

The LGBTQ+ Equity Center provides the campus with leadership and expertise in building a fully equitable community; strengthens and supports people of diverse sexes, gender identities or expressions, and sexual orientations; and develops visible and vibrant LGBTQ+ campus communities.

## Student-Centered Objectives

*Campus Transformation toward a Fully Equitable Community for LGBTQ+ People*

- Fully inclusive campus climate that embraces LGBTQ+ people and meets their needs
- Campus policies in support of LGBTQ+ people and procedures that enact those policies within relevant units
- Widespread and diverse dedicated resources in support of LGBTQ+ people
- Competency within each functional area for working effectively with LGBTQ+ people

*LGBTQ+ Social Justice Leadership Development*

- Effective student leadership to develop and sustain LGBTQ+ communities throughout the campus

*LGBTQ+ Student and Community Development*

- Retention, persistence, and graduation rates of LGBTQ+ students on par with or greater than the general student body
- Development of confident identities with a sense of belonging at the university
- Establishment of habits promoting wellness and resiliency
- Visible and vibrant LGBTQ+ communities throughout the campus

# Multicultural Involvement and Community Advocacy

1120 Stamp Student Union
Phone: 301-314-8600
Fax: 301-314-2672
mica-contact@umd.edu
http://stamp.umd.edu/mica/

The Multicultural Involvement and Community Advocacy Office (MICA), is a unit within the Adele H. Stamp Student Union - Center for Campus Life and the Division of Student Affairs. In support of the university's commitment to diversity, multiculturalism, and social justice, we advance a purposeful campus climate that capitalizes on the educational benefits of diversity, through student-centered advising, advocacy, programs, research, and practices. We encourage student involvement and engagement in the campus and community. MICA serves all students and seeks to empower them through education on issues of race, ethnicity, sexual orientation, gender identity, gender expression, religion and their intersections. All of the activities, programs, services and research of MICA strive towards meeting the common outcome of developing "good citizens" and committed leaders.

# Nyumburu Cultural Center

Phone: 301-314-7758
Fax: 301-314-0383
http://nyumburu.umd.edu

**Director:** Ronald Zeigler, Ph.D.

The Nyumburu Cultural Center has served as a major resource of cultural, historical, and social programming at the University of Maryland, College Park for 53 years. The center works closely with student, faculty, administrative, and community organizations. The Nyumburu Cultural Center offers a variety of socio-cultural, musical, educational and artistic programs to the campus community. The nature of the diverse programming and activities is based on the African American, African, and Caribbean Diaspora experience(s). Nyumburu is home of the Maryland Gospel Choir, Shades of Harlem (performing arts ensemble), The Black Explosion Newspaper, Male Spokesmodel Competition, Ms. Unity Scholarship Pageant, Juke Joint, Gospel Happy Hour, Leadership Series, Nyumburu Jazz Club, Kwanzaa Celebration, Cultural Dinner during Black History Month, Literature Conference, Homecoming Alumni Tailgate, Annual Talent Showcase, Annual Student Awards Banquet, Black Male Initiative (BMI) Program, NEWSBREAK, iSpeak Nyumburu, and the Sisterhood of Unity and Love (SOUL).

Nyumburu's staff are advisors to many campus student organizations: Black Student Union, African Student Association (ASA), The Maryland Gospel Choir, The Black Explosion Newspaper, Sigma Gamma Rho Sorority Inc., Delta Sigma Theta Sorority Inc., Kappa Alpha Psi Fraternity, Inc., Students for Justice in Palestine, and Dimensions Modeling Group to name a few.

Nyumburu presents Blues, Jazz, and Gospel music concerts as well as academic courses in the following: (AASP298Z) Jazz As a Cultural Art Form for three credits, and Maryland Gospel Choir students earn one credit (MUSC329).

During the summer, Nyumburu sponsors a summer camp program for students from the age of 5 to 17, Camp Shule. Through this dynamic eight-week program, opportunities for youth to explore academic, artistic, and athletic interests in a relaxed and creative environment are provided. Camp Shule was established to provide the children of Maryland faculty/staff and local youth with a diverse educational experience.

The Multipurpose Room, conference rooms, computer labs, and the Nyumburu Amphitheatre of the Nyumburu Cultural Center are open to the students, faculty and staff of the University of Maryland. Room reservations are also available at a nominal cost for departmental and off-campus events and programs. Come in and interact with us, meet other students and make your ideas and wishes known. Our staff goal is to make Nyumburu a cultural center that is, **"Your Home Away from Home."**

# Off-Campus Housing Services

1111 Annapolis Hall
Google Map Location (https://goo.gl/maps/xN6ptZYRkGQquM1AA/?coh=178573&entry=tt)
Phone: 301-314-3645
och@umd.edu
http://och.umd.edu
http://ochdatabase.umd.edu

The Off-Campus Housing Services Office provides information and resources about housing and off-campus living. Resources available online include a searchable web-based housing database listing available rental properties in the area; a roommate finder database where students create a profile and search for others with similar housing needs and interests; as well as an extensive array of educational materials. For assistance in locating housing, please visit http://och.umd.edu or contact our office.

# Office of Civil Rights and Sexual Misconduct (OCRSM)

3101 Susquehanna Hall
Phone: 301-405-1142
civilrights@umd.edu
http://ocrsm.umd.edu

**Director and Title IX Officer:** Angela Nastase, J.D.

The Office of Civil Rights and Sexual Misconduct (OCRSM) administers the University of Maryland's non-discrimination policies and works to foster a learning and working environment free from all forms of discrimination and harassment, including sexual misconduct (https://

ocrsm.umd.edu/sexual-misconduct/prohibited-conduct-definitions/). OCRSM is sometimes referred to as the Title IX Office.

OCRSM administers university policies and procedures (https://policies.umd.edu/section/2240/) prohibiting and addressing discrimination and harassment based on race, color, sex, gender identity or expression, sexual orientation, marital status, age, national origin, political affiliation, physical or mental disability, religion, protected veteran status or any other legally protected characteristic.

To report sexual misconduct, discrimination, or harassment on the basis of sex or gender in any of the university's education programs or activities or to obtain assistance with supportive measures, please contact the university's Title IX Coordinator via email at titleixcoordinator@umd.edu or complete the Online Reporting Form (https://cm.maxient.com/reportingform.php?UnivofMaryland&layout_id=4).

## Title IX Non-Discrimination Notice

The University of Maryland (UMD) does not discriminate on the basis of sex, gender identity or expression, sexual orientation, race, color religion, national origin, ethnicity, physical or mental disability, protected veteran status, age, genetic information, or any other characteristic protected by law in its programs and activities. Specifically, Title IX prohibits discrimination on the basis of sex in UMD programs and activities, including with respect to admission and employment. The following office has been designated to handle or coordinate inquiries regarding UMD's non-discrimination policies and Title IX:

**For Sexual Misconduct, Title IX and Non-Discrimination Policy inquiries:**
Title IX Coordinator/Officer, Angela Nastase, JD
Office of Civil Rights & Sexual Misconduct
3101 Susquehanna Hall/4200 Lehigh Road
College Park, MD 20742
Email: anastase@umd.edu or titleixcoordinator@umd.edu
Telephone: 301-405-1142

**For information on non-discrimination, including Title IX inquiries, you may also contact:**
The Office for Civil Rights, Philadelphia Office
U.S. Department of Education
The Wanamaker Building, Suite 515
100 Penn Square East
Philadelphia, PA 19107
Email: OCR.Philadelphia@ed.gov
Telephone: 215-656-8541
Facsimile: 215-656-8605

## Office of Student Conduct

2130 Clarence M. Mitchell, Jr. Building
Phone: 301-314-8204
Fax: 301-314-9533
studentconduct@umd.edu
http://studentconduct.umd.edu

**Director:** James E. Bond, J.D.

It is the mission of the Office of Student Conduct to resolve allegations of misconduct under the *Code of Student Conduct* and *Code of Academic Integrity* in a manner consistent with our core values of fairness, honesty, integrity, respect, and compassion while promoting the university's educational mission. Essential to this mission is the facilitation of learning and character development of future leaders and sound citizens, which includes involving students in the adjudication process.

## General Statement of Student Responsibility

Balancing students' rights with their responsibilities as members of the university community is imperative to creating mature and engaged citizens. The university has the responsibility of protecting the safety, welfare, rights, and property of all members of the campus community, as well as ensuring all members of the campus community have the opportunity to pursue their educational objectives. Students at the University of Maryland are expected to uphold the values of the university by conducting themselves in accordance with university policies and procedures. The Office of Student Conduct extends jurisdiction of the *Code of Student Conduct* to include conduct which occurs **off-campus** as a means to enhance the safety and security of students living both **on- and off-campus**. Specific expectations for student behavior are outlined in the *Code of Student Conduct* and the *Code of Academic Integrity.* See http://policies.umd.edu.

## Disciplinary Procedures

Students alleged to have violated university regulations are accorded fundamental due process in disciplinary proceedings, however the university procedures are administrative and educational in nature, substantially differing from any civil or criminal proceedings. We aim to center the student's learning and development by fostering an environment of accountability and reflection. The university's disciplinary procedures are outlined in the *Code of Student Conduct* and *Code of Academic Integrity,* and are supplemented by materials provided by the Office of Student Conduct to assist students who are facing allegations of misconduct.

## Religious Programs

1101 Memorial Chapel
Phone: 301-314-9866 or 301-314-9893
chapel@umd.edu
http://stamp.umd.edu/centers/memorial_chapel/

The following chaplains and their services are available:

**Baptist**
Mrs. Jessica Senasack
2120 Memorial Chapel
Phone: 410-627-1096
jessbcm@umd.edu

**Black Student Ministries**
Dr. Haywood A. Robinson III
1112 Memorial Chapel
hrobins1@umd.edu

**Christian Science**
Ms. Jennifer Eidson
2118 Memorial Chapel
Phone: 240-481-6278
jeidson@umd.edu

**Church of Jesus Christ of Latter Day Saints**
Currently vacant

**Episcopal/Anglican**

Rev. Ray Ranker (Interim)
2116 Memorial Chapel
Phone: 301-405-8448
lutheran@umd.edu

**Hindu**
Ms. Kiran Sankhla
2112 Memorial Chapel
ksankhla@umd.edu

**Jewish - Chabad**
Rabbi Eli Backman
Chabad Jewish Student Center
7403 Hopkins Ave., College Park
Phone: 301-277-2994
chabad@umd.edu

**Jewish - Hillel**
Rabbi Ari Israel
Hillel Jewish Student Center
7612 Mowatt Lane, College Park
Phone: 301-422-6200
aisrael@marylandhillel.org

**Lutheran**
Rev. Raymond Ranker
2103 Memorial Chapel
Phone: 301-405-8448
lutheran@umd.edu

**Muslim**
Mr. Tarif Shraim
2105 Memorial Chapel
Phone: 240-499-4733
tshraim@umd.edu

**Orthodox Christian**
Rev. Kosmas Karavellas
2647 Riva Road, Annapolis
Phone: 410-573-2072
fatherkosmas@schgochurch.org

**Roman Catholic**
Fr. Conrad Murphy
Catholic Student Center
4141 Guilford Rd., College Park
Phone: 301-864-6223
frconrad@catholicterps.org

**United Campus Ministry** (*Presbyterian, Disciples of Christ, United Church of Christ*)
2101 Memorial Chapel
Phone: 301-405-8450

**United Methodist**
Rev. Michelle Mejia
2102 Memorial Chapel
Phone: 301-970-9777
revmejia@umd.edu

# TerrapinSTRONG

2417 Marie Mount Hall
Phone: 301-405-1943
terrapinstrong@umd.edu
http://terrapinstrong.umd.edu

**Program Manager:** Leslie Krafft, Ed.D.

TerrapinSTRONG is a shared vision and values for the entire campus community and one of 12 initiatives identified by President Pines on his first day in office as president. All new faculty, staff and students participate in the TerrapinSTRONG onboarding course, as well as TerrapinSTRONG onboarding initiatives within their division/college/school. These onboarding experiences are just the first step to creating an inclusive campus. Each participant creates their own action plan following the training, and the TerrapinSTRONG vision is the shared understanding from which we work to improve the sense of community, connection and inclusion on our campus.

# Transportation Services

Regents Drive Garage
Phone: 301-314-DOTS (x3687)
transportation@umd.edu
http://transportation.umd.edu

**Executive Director of Transportation Services:** David Allen

The Department of Transportation Services (DOTS) is a self-supported agency in the Division of Administration under the supervision of the Vice President and Chief Administration Officer, and is the primary agency responsible for administering parking and transit management programs on the College Park campus. DOTS is dedicated to providing service to the campus community through planning, education and enforcement. Honoring the mission and values of the University of Maryland, DOTS strives to provide access to safe, cost-effective, sustainable, and innovative services that anticipate the growing needs of our campus community.

## Biking

The University of Maryland is a gold-level Bicycle Friendly Campus. The BikeUMD program, a partnership between DOTS and University Recreation and Wellness, is responsible for bicycle education and encouragement on campus. BikeUMD offers classes, discounted safety gear, sponsored events, group rides and bicycle registration. The RecWell Bike Shop offers free bike maintenance and semester bike rentals. All bicycles on campus are required to be registered. Visit the Bike Index (https://transportation.umd.edu/bike-registration/) for free registration.

## Electric Micromobility

Electric micromobility devices such as electric bikes (e-bikes) and electric scooters (e-scooters) are available for rental through our shared mobility system, Veo (https://transportation.umd.edu/rent-veo/).

If you are bringing your e-bike or e-scooter to campus, you are required to register it with DOTS (https://transportation.umd.edu/escooter-ebike-registration/). You will receive a registration sticker that displays a unique registration code. Unregistered vehicles are subject to booting and/or impoundment (https://transportation.umd.edu/escooter-ebike-registration/).

All e-bike and e-scooter riders should adhere to the university e-scooter and e-bike regulations (https://transportation.umd.edu/escooter-ebike-regulations/) and safe riding practices (https://transportation.umd.edu/safety/e-scooter-and-e-bike-safety/) indicated on our website.

## Motorized Scooters

Parking registration is required for any motorized scooter parked on campus. Motorized scooter drivers are required to wear a helmet and eye protection while operating or riding a scooter. Any motorized scooter left unattended in an area not designated for scooter or motorcycle parking is subject to towing. Please visit the DOTS website (https://transportation.umd.edu/parking/motorized-cycle/) for more information about motorized scooters and a map of motorized scooter parking locations.

## Parking

DOTS is responsible for managing and maintaining approximately 16,500 parking spaces at UMD. All students who plan to park on campus must register online before bringing a car to campus. Online student parking registration begins in July and August for fall or annual parking permits, in January for spring-only parking and in April for summer parking. Parking registration fees are billed to student accounts. Parking is assigned on a first-come, first-served basis according to credit level and housing status. Please visit the DOTS website (https://transportation.umd.edu/parking/) for specific parking lot assignment information.

## Shuttle-UM

The Shuttle-UM transit system (https://transportation.umd.edu/shuttle-um/), operated by DOTS, is supported mainly by student fees. Shuttle-UM provides fare-free commuter, evening, NITE Ride, paratransit and charter services to university students, faculty and staff while classes are in session. Information for each Shuttle-UM route including schedules, stop lists and route maps, is available on the DOTS website (https://transportation.umd.edu/shuttle-um/) and is updated each semester.

## Social Media

While the DOTS website is the best place to get transportation information and alerts, additional information can be found via @DOTS_UMD (https://twitter.com/DOTS_UMD/) on Instagram and Twitter and DOTSUMD (https://facebook.com/dotsumd/) on Facebook

## Sustainable Transportation: UMD Smart Commute

UMD Smart Commute is a collection of programs that incentivizes the university community to make sustainable transportation choices. Through the Smart Commute trip planner, students can locate bike paths, carpool buddies and transit options. To sign up for Smart Commute, visit the Smart Commute web platform (https://transportation.umd.edu/sustainable-transportation/).

## Transportation to New York, New Jersey, and BWI Airport

DOTS provides transportation to and from New York and New Jersey for Thanksgiving, winter and spring breaks. Registration (https://transportation.umd.edu/shuttle-um/charter/break-transportation/) opens approximately one month before the scheduled trip date. Free shuttle service to and from Baltimore/Washington Thurgood Marshall International Airport (BWI) is available every two hours throughout the day for Thanksgiving, winter and spring breaks. This is a first-come, first-served service.

## Carshare

For students who rarely need access to a vehicle, carsharing is a great alternative to storing a car on campus. With carshare services, members can reserve cars anytime for short trips to the grocery store or day trips throughout the region. To learn more about carsharing, visit our website (https://transportation.umd.edu/sustainable-transportation/carshare-zipcar/).

# University Book Center

STAMP, Ground Floor and Basement Level
Phone: 301-314-BOOK
http://oneterp.com

The University Book Center, operated by Barnes & Noble College, is the official bookstore for the University of Maryland. The Book Center is the only store that carries textbooks for all of your classes. The store has a large selection of ***used, digital, and rental textbooks*** that are available in many courses. General-interest books, literature, technical books, and best sellers can be found on the lower level of the store. The Book Center also carries a wide selection of school supplies, and imprinted sportswear and related items. The Book Center's hours of operation and a complete listing of their products and services can be found at http://oneterp.com.

# University Career Center & The President's Promise (UCC/TPP)

3100 Hornbake Library, South Wing
Phone: 301-314-7225
UCC-studenthelp@umd.edu
http://careers.umd.edu
Follow us on social media: @UMDCareerCenter (http://careers.umd.edu)

**Director:** Allynn Powell

The University Career Center & the President’s Promise (UCC) supports the university’s mission and academic programs by providing comprehensive programs and services to meet the diverse career development needs of degree-seeking students. The Center teaches and advises students to explore career interests, develop skills to navigate the search process, and collaborates with academic departments, employers, and alums to implement innovative opportunities for experiential learning and industry connections. All students are encouraged to engage the Center early and often for guidance related to internships and co-curricular experiences aligned to their academic endeavors. Visit the UCC's website and social media for more information about resources and services.

## We Can Help You:

- Address educational and career decisions
- Take advantage of internships, full-time, part-time and summer employment opportunities
- Sharpen job search skills and strategies, including improving resume and cover letters
- Plan for graduate and professional school

# A Network of Support

Located in the South Wing of Hornbake Library, the Center serves as a campus hub of career-related activities. We also distribute staff to locations in the following schools and colleges:

- College of Agriculture and Natural Resources (https://agnr.umd.edu/student-opportunities/internships-careers/)
- College of Arts and Humanities (https://arhu.umd.edu/careers/)
- College of Behavioral and Social Sciences (https://fellercenter.umd.edu/)
- College of Computer, Mathematical and Natural Sciences (https://cmns.umd.edu/undergraduate/research-internships/careerservices/)
- **College of Information**
- School of Public Health (https://sph.umd.edu/content/university-career-center-sph/)

Distributed staff provide advising and programming that targets industries and professional fields related to majors in their respective host school or college. Students may access resources, services, and programs based on their career interests and immediate needs.

The Center partners with other campus career operations, including:

- Robert H. Smith School of Business Career Services (https://rhsmith.umd.edu/office-career-services/)
- A. James Clark School of Engineering Career Services (https://eng.umd.edu/careers/)
- School of Public Policy Career Services (https://spp.umd.edu/career-connections/)

# Handshake & Other Online Resources

Update your Handshake (https://careers.umd.edu/handshake/) profile to manage your career. Handshake is the Center's online career management database and your gateway to:

- **Applying** to 1,000+ internships, part-time job, and full-time job postings
- **Scheduling** career advising appointments and signing up for workshops, panels, and employer programs
- **Accessing** virtual resources: Focus2 (https://umd.joinhandshake.com/edu/articles/26815/) (self-assessment), Vault (https://umd.joinhandshake.com/edu/articles/26815/) (industry guides), Big Interview (https://umd.joinhandshake.com/edu/articles/26815/) (virtual interviewing practice), Mentra (https://umd.joinhandshake.com/edu/articles/26815/) (Job search platform designed for neurodivergent job seekers with autism, ADHD, dyslexia, and other neurological differences), and more (https://umd.joinhandshake.com/edu/articles/26815/).

# Career Assistance

Schedule a 30-minute appointment with a career advisor (https://careers.umd.edu/meet-us/career-advising/) or undergraduate Peer Career Educator through Handshake (https://careers.umd.edu/handshake/). Topics may include:

- Choosing a major
- Exploring career fields & reaching out to professionals
- Searching for internships, jobs, and grad programs
- Preparing for interviews & mock interviews
- Resume/cover letter reviews

**Terrapins Connect** is the university's virtual platform that connects Terps from across the world with one another for mentoring, networking, and professional opportunities | http://terrapinsconnect.umd.edu

# Career Courses

EDCP108I: College and Career Advancement: Concepts and Skills; Academic Transitions to Internships • 1 credit
This half-semester (7 weeks) course is recommended for students who have never had an internship and are actively searching for one. The online asynchronous course takes students through key exploratory and preparation activities, including understanding the components of an internship, increasing knowledge about an intended career field, developing a resume and cover letter, and identifying potential internship sites.

PSYC123: The Psychology of Getting Hired • 1 credit
This online asynchronous course introduces students to the psychological principles involved in the hiring processes. Students pace themselves through modules that combine academic content with hands-on activities, online discussions, and deliverable materials. Two in-person activities—a resume review and a mock interview—occur in the Center.

# Employer Hiring Events

The Center offers several hiring events (https://careers.umd.edu/events/) during the fall and spring for UMD students and alumni from all academic backgrounds to connect with employers. Some hiring events include:

- Fall (https://careers.umd.edu/events/fall-career-fairs-recruiting-events/) and Spring (https://careers.umd.edu/spring-career-fairs-recruiting-events/) Career & Internship Fairs serving all majors and industries
- Industry-specific Career & Internship Fairs
- Meet-ups: smaller industry-specific informal networking events
- Individual employer information sessions

# Workshops, Panels & Other Programs

The Center regularly offers workshops, panels, and other programs to educate students on potential career fields and relevant career development topics. All programs are listed on the UCC Event Calendar on our website (https://careers.umd.edu/).

**Identity-Based Programs**, including the "Working While Black Career Series", programs for students with disabilities and intersecting identities, and more

**Industry-Specific Programs**, including internship & job search workshops based on industry, "Careers In..." panels, "Career Chats" with UMD alumni, Career Shuttles to local employers, and more

**How to... Workshops** for internship and job search strategies, building your network, preparing for interviews (general, scientific, technical), and more

**Intern for a Day** to expose students to different careers through one-day job shadowing experiences (https://careers.umd.edu/explore-careers/career-exposure/intern-for-a-day/)

# University Counseling Center

Shoemaker Building
4281 Chapel Lane
Phone: 301-314-7651
Fax: 301-314-9206
cajoshi@umd.edu
http://counseling.umd.edu

**Director:** Chetan Joshi, Ph.D.

The Counseling Center which is comprised of two divisions - the Counseling Service and Research Unit - provides free and confidential counseling, consultation and treatment services to meet the mental health, and academic needs of students. To help foster healthy academic, emotional, social, and career development, a variety of services are offered, including cognitive-behavioral workshops, group counseling, short-term individual counseling, and career assessment and counseling service. Referral services are offered for students who are best served by community providers.

The Counseling Center is staffed by licensed psychologists and counselors. To schedule an appointment, call 301-314-7651 or visit the first floor of Shoemaker Building. An after-hours counseling service staffed by professional counselors is available for urgent mental health concerns after business hours and during weekends, breaks, and holidays. Call 301-314-7651.

## What to Expect When Seeking Counseling Services

- Students seeking counseling/therapy will be assessed by a professional counselor to determine the best fit for their needs and our services.
- Following the initial assessment, students may be offered a number of services, such as group counseling, cognitive-behavioral workshops, or individual counseling. Short-term individual counseling is only offered when it is therapeutically appropriate and the best fit for a student's needs.
- During peak service times, students seeking individual counseling may need to wait for a counselor to become available. Limited student availability and requests for specific counselor preferences (race, gender, religion, etc.) may lead to longer wait times. At peak times during the semester, students may be referred to community providers.
- The Counseling Center, staffed by professional counselors, provides training opportunities for graduate level students. Some students may be assigned to work with one of our counselors-in-training. All trainees are under close supervision by an experienced counselor or licensed psychologist.
- The Counseling Service division works in close collaboration with the Behavioral Health Service (BHS) in the University Health Center. When therapeutically appropriate, students are referred to BHS for psychiatric or medication evaluations. The Counseling Center does not prescribe medication.
- The Counseling Center does not provide long-term treatment or highly specialized services such as behavioral analysis, neuropsychology, family therapy, hypnosis, or intensive treatment for eating disorders and chronic mental health conditions. Students with such needs may be referred to community providers.

# Counseling Center Services

## Group Counseling and Cognitive-Behavioral Workshops

http://counseling.umd.edu/cs/clinical/#group/

The Counseling Center offers interpersonal psychotherapy groups and weekly theme-specific groups that address a variety of common issues, such as relationships, sexual assault, eating disorders, anxiety/stress, dissertation support, social identity, and stress management. Facilitated by psychologists and counselors, the typical therapy group size is six to eight students. Three (3) hour cognitive-behavioral workshops that teach basic coping skills for managing symptoms of depression and anxiety are also available.

## Short-Term Personal and Psychological Counseling

http://counseling.umd.edu/cs/

You may be recommended to see a counselor for short-term individual counseling or couples counseling, or join one of the many counselor-led support groups.

## Career Assessment and Counseling

http://counseling.umd.edu/cs/clinical/#career/

Whether you are choosing a major, changing a major, or establishing career goals, it is important to understand how your personality, values, and interests relate to your future professional goals. If you are experiencing problems with choosing a major or career indecision, you can get help with this process at the Counseling Center.

## Drop-In Hours

Unscheduled drop-in hours are available daily between the hours of 3 to 4 p.m. for students of color, LGBTQ students, student veterans, international students, and undocumented students.

## Research Services

http://counseling.umd.edu/research/

The Research Unit produces a variety of research briefs, publishes articles in professional journals, and presents study findings at conferences and to the university campus community. Design, implementation, and analyses of the biannual University New Student Census and the Withdrawal Survey are the Research Unit's primary responsibilities. Areas of research include: student development & retention; clinical service delivery; college students' basic needs (food & housing security), academic success, & well-being; as well as multiculturalism, inclusiveness, & action research.

## Support for Parents of College Students

http://counseling.umd.edu/cs/familyfriends/#consult/

The Parent Warmline is a telephone consultation resource available to parents/guardians/family members concerned about their student's adjustment at college. Counselors help callers address a range of issues and concerns.

## Counseling Center Hours

### Counseling Service Appointments

**301-314-7651 (Crisis counseling available after-hours and during breaks, weekends, and holidays)**

| Day | Hours |
|---|---|
| Fall and Spring Hours: Monday - Thursday | 8:30 a.m. to 7 p.m. |
| Fall and Spring Hours: Friday | 8:30 a.m. to 4:30 p.m. |
| Summer Hours: Monday - Friday | 8:30 a.m. to 4:30 p.m. |

### Accessibility and Disability Service

**301-314-7682**

| Day | Hours |
|---|---|
| Monday - Friday | 8:30 a.m. to 4:30 p.m. |

# University Health Center (UHC)

Campus Drive, Building 140
Phone: 301-314-8180 / 8184
Fax: 301-405-9755
health@umd.edu
http://health.umd.edu

**Director:** Spyridon Marinopoulos, M.D.

## Hours of Operation*

*Health Center Hours are subject to change. Please visit the University Health Center* website *(*https://health.umd.edu*) for current information on hours of operation, services, access to care, and other details related to health and wellness.*

## About the University Health Center

The University Health Center (UHC) is a nationally accredited ambulatory health care facility located on Campus Drive (across from STAMP). All registered students living on or off-campus are eligible to use the UHC. The UHC is open during the hours listed above, with varied hours during semester breaks, holidays and summer sessions. Visit the UHC website, http://health.umd.edu, for up-to-date information. ***For life-threatening or Mental Health Emergencies, call 911 or 301-405-3333*** (University of Maryland Police Department (https://www.umpd.umd.edu)). For a list of area hospitals or urgent care centers and their contact information, visit: the Emergencies and After Hours Care page (http://health.umd.edu/emergencies/). The After Hours Nurse Line (**301-314-9386**) is available when the University Health Center is closed.

## Services*

University Health Center offers comprehensive health services including:

- Acute Care (https://health.umd.edu/medical-behavioral-health/walk-services/)
- Behavioral Health Services (https://health.umd.edu/behavioral-health/)
- Campus Advocates Respond and Educate (CARE) to Stop Violence Program (https://health.umd.edu/CARE/)
- Health Promotion and Wellness Services (https://health.umd.edu/wellness-advocacy/)
- HIV and STI testing (https://health.umd.edu/wellness-advocacy/sexual-health-and-wellness/)
- International Travel/Allergy/Immunizations Clinic (https://health.umd.edu/index.php/medical-behavioral-health/international-travel-clinic/)
- Gynecology, Reproductive, Genital, and Sexual Health Services (https://health.umd.edu/GRGSH/)
- Lab
- Nutrition (http://health.umd.edu/nutritionservices/)
- Pharmacy (https://health.umd.edu/index.php/pharmacy/)
- Physical Therapy
- Primary Care (https://health.umd.edu/index.php/medical-behavioral-health/primary-care/)
- Sports Medicine (https://health.umd.edu/sportsmedicine/)
- Substance Use Intervention and Treatment (http://health.umd.edu/suit/) (SUIT)
- X-Ray (https://health.umd.edu/medical-behavioral-health/x-ray-services/)

## How to Access Care*

Students are seen by appointment (https://health.umd.edu/about-us/appointments/) for routine care 8 a.m. - 4:30 p.m. on weekdays.

- Some appointments can be scheduled online at http://myuhc.umd.edu.
- Same-day appointments are available.
- Acute Care Clinic is available. Patients are triaged and seen based on urgency.
- Fees will be assessed if an appointment is not cancelled or rescheduled within:
  - 4 hours for a medical appointment,
  - at least 24 hours for the following:
    - Behavioral Health
    - Physical therapy
    - Travel clinic
    - Nutrition
    - Smoking cessation
    - Massage
    - Acupuncture
- You may cancel or change an appointment on-line at http://myuhc.umd.edu or by calling 301-314-8184. Please see our cancellation policy (https://health.umd.edu/about-us/appointments/).
- *The UHC and the University assume no financial responsibility for care received off campus.*

## Paying for Your Care

http://health.umd.edu/insurance-billing/

There are charges for almost all services provided at the University Health Center (UHC). We participate with many insurance plans and can bill those plans for our medical services. Your financial responsibility will vary depending on the type of insurance and service provided. We do allow the option to pay for service directly without using health insurance.

- ***Patients should always bring their health insurance card to the UHC when seeking care.***
- Patients are to check with their health insurance company and not assume that the health plan will pay for services provided at the UHC as some plans **do not** cover services outside their geographic area.
- We are considered out-of-network with Point of Service (POS) plans.

- We cannot bill HMOs (e.g., Kaiser Permanente), Medicare, or out of state Medicaid plans and non-students with Medicaid.
- The Student Health Insurance Plan (SHIP) covers most services at the Health Center. When utilizing the Health Center, SHIP patients do not have deductibles and no fee is required for covered services.
- Charges not covered by insurance are posted to the student's account with Student Financial Services (https://billpay.umd.edu/) or can be paid at the time of visit in the UHC. Charges can be paid by cash, check, credit cards, or Terrapin Express at the UHC.

The University Health Center Pharmacy (https://www.health.umd.edu/pharmacy/) participates with many pharmacy insurance plans.

Behavioral Health (https://health.umd.edu/behavioral-health/) and Nutrition (https://health.umd.edu/wellness-advocacy/nutrition-services/) services are not billed through insurance.

- Behavioral Health Services are available to *registered students only*. There is a fee for each session with a psychiatrist or therapist.
- Nutrition Services are available to students and non-students; there are fees for appointments with the Registered Dietitian.

If you have further questions about fees or using your health insurance at the UHC, you may refer to our Insurance and Billing (https://health.umd.edu/insurance-billing/) page for more information.

## Confidentiality

Students younger than 18 years will need permission (https://health.umd.edu/home/forms/) from a parent or legal guardian to be treated, except for mental health and sexual health services. Treatment and visit information will only be given to parents with the student's consent or through a court-ordered subpoena. *If the visit is billed through an insurance policy, the insurance company may send detailed information concerning a medical visit to the policy holder (i.e., parent).*

## Mandatory Health Insurance

http://health.umd.edu/mandatory-insurance/

The University of Maryland requires ***all undergraduate students enrolled in 6 or more credits and all graduate students enrolled in 48 or more units to show proof of health insurance.*** This is an active process that must be completed each year.

- *Each year,* students who have health insurance can go directly to our Student Health Insurance (https://health.umd.edu/SHIP/) page to learn more about the Student Health Insurance Plan (https://health.umd.edu/SHIP/) and to **complete the insurance waiver process**.
- Students without coverage or those who wish to purchase the student health insurance plan can enroll through a link provided on our Student Health Insurance Plan (https://health.umd.edu/SHIP/) page.

Additional information on student insurance and Frequently Asked Questions (https://health.umd.edu/mandatory-insurance/) can be found on the University Health Center's website.

## Immunization Requirements

The University of Maryland requires **all** new students, including graduate and transfer students, to provide *proof of two immunization dates for Measles, Mumps, and Rubella (MMR).* The Immunization Record Form (https://health.umd.edu/forms/) and documentation *must be submitted* online at http://myuhc.umd.edu *no later than the first day of class.*

- **In addition to the above MMR requirement,** *INTERNATIONAL STUDENTS* from selected countries with a high incidence of Tuberculosis must *also* provide documentation of a **Tuberculosis (TB) test** completed within the past six months.
- Maryland State Law requires students living in residence halls to provide proof of vaccination (https://www.health.umd.edu/flu/) against *meningococcal meningitis or a signed waiver* stating that they have chosen not to receive the vaccination.
- Failure to submit a completed Immunization Record Form (https://health.umd.edu/forms/) will result in a Registration Block for the future semester and a non-compliance fee may be assessed. The Registration Block will be removed after the Immunization Record has been submitted and processed.

***Information is subject to change. Please visit the University Health Center** website **(**https://health.umd.edu**) for current information on hours of operation, services, access to care, and other details related to health and wellness.***

# University Recreation and Wellness

Phone: 301-226-4500
recwell@umd.edu
http://recwell.umd.edu

**Director:** Jay Gilchrist

Being physically active as a college student is a crucial component of success in and out of the classroom. Activity helps students manage stress, boosts their immune system against illness, aids sleep, improves mood, increases energy and provides a social connection to other students. Perhaps most importantly, movement primes the brain for learning and makes it easier to focus when studying.

University Recreation & Wellness (RecWell) encourages Terps to make the most of their college experience by incorporating movement and activity into their daily lives. There are many opportunities for students to find an activity they enjoy through RecWell.

## Facilities & Membership

Membership with RecWell and access to all its facilities, programs and services are included in the student fee. Students simply need their university ID to enter recreation facilities on campus. Facilities include: the Eppley Recreation Center (ERC), Ritchie Coliseum, Reckord Armory Gym, the fitness studios in Regents Drive Garage, and multiple outdoor playing fields.

The ERC is the largest recreation facility on campus and offers a cardio fitness center, weight rooms, matted room, indoor track, and functional training studios as well as courts for basketball, racquetball, wallyball, pickleball, and squash. The ERC also features indoor and outdoor pools for lap swimming and diving, a sauna, and steam room. When school is in session, the ERC is open 6 a.m.–midnight on weekdays, 8 a.m.–10 p.m. on Saturdays, and 10 a.m.– midnight on Sundays* for students to enjoy their favorite activity on their own schedule. Weight rooms, cardio fitness centers, and functional training spaces are also located in Ritchie Coliseum. Volleyball, cardio fitness centers and weight rooms are also located in the School of Public Health.

## Group Fitness Classes & Personal Training

For students motivated by a structured workout in a high-energy group setting, RecWell offers over 100 group fitness classes each week, including yoga, Zumba®, BODYPUMP™, cycling, BODYCOMBAT™, barre, and H.I.I.T. (high intensity interval training). Classes are no additional charge but require a reservation to recreate. Students may also take advantage of working with a certified personal trainer to meet their individual fitness goals at a discounted rate.

## Intramural & Club Sports

Students who enjoy playing sports have many opportunities to do so through RecWell's club and intramural sports programs. These programs are open to everyone and you don't have to consider yourself an athlete to play. Many club sports do compete regionally and nationally against other schools, but they are also a great way to learn a new sport or simply enjoy the comradery that comes from playing for fun. There are 40+ student-led club sports, including ballroom dance, lacrosse, black belt, equestrian, sailing, figure skating, paintball, and soccer. Students can also participate in intramural sports that are open to all members of the university community. Participants select their own level of competition and play in either men's, women's or coed leagues over the course of a weekend, a week or a tournament lasting several weeks. Intramural sports include basketball, flag football, softball, soccer, racquetball, table tennis and more.

## Adventure Program

For students who prefer to be active outdoors, RecWell's adventure program offers outdoor adventure trips, clinics, and social bike rides throughout the year. Students can take a day or weekend trip to go backpacking, caving, mountain biking, kayaking, rock climbing, or other various outdoor activities. Students may also use the adventure program resource library and rent gear to pursue their own outdoor adventure. The climbing wall and challenge course are located at the ERC, where students can challenge themselves physically and mentally to increase interpersonal skills and self-confidence. Maryland also has a vibrant cycling community. The RecWell Bike Shop in the Cole Student Activities Building offers free repairs and maintenance and will teach students how to repair their own bikes.

## Esports Program

Students can enjoy competitive, club-based, and recreational gaming through the Esports program. The program is open to all students at the University and is focused on building community, fair play, and social wellness through gaming. The program consists of 5 premier teams which compete against other Big Ten institutions and 16 student led gaming clubs that compete in intramural and intercollegiate tournaments.

## University of Maryland Golf Course

Whether you're an avid golfer or just getting started, you are welcome at the University of Maryland Golf Course. RecWell maintains a full-service, year-round, 18-hole, par 71 golf course, driving range and putting greens just across University Boulevard from The Clarice. The University of Maryland Golf Course offers discounted student memberships and playing rates, as well as golf lessons, clinics, tournaments, and competitions.

RecWell also offers community programs open to students including swimming lessons, water safety instructor and lifeguard training, and tennis instruction.

# Veteran Student Life

0110 Stamp Student Union
Phone: 301-314-0073
vetstudentlife@umd.edu
http://veterans.umd.edu

**Interim Coordinator for Veteran Student Life:** Kat Robinson

Veteran Student Life (VSL) serves to build and maintain a community of veteran and military-connected students, staff, faculty, and alumni at the University of Maryland that collectively supports the transition from military life to civilian college. Together, the community provides opportunities for development along the 8 Dimensions of Wellness throughout the UMD experience empowering students to develop a renewed sense of purpose and significance during and after their time at the University of Maryland.

Overview of what is offered through Veteran Student Life:

- Veteran-centered campus events and programs
- Veterans Week events and service at Memorial Chapel in November - View Events (https://stamp.umd.edu/engagement/veteran_student_life/veterans_week/)
- Support for TerpVets Student Organization - Join the TerpVets Facebook Group (https://www.facebook.com/groups/TerpVets/)
- STEM Tutoring for military-connected students - Request a Tutor (https://docs.google.com/forms/d/e/1FAIpQLSeWyF2nKezlgpaO7rPqC8jgDRlydAPkgpL0Db_GQwcjqygEsQ/viewform/) and Apply to be a Tutor (https://stamp.umd.edu/engagement/veteran_student_life/current_students/stem_tutoring/)
- Ammerman Student Veteran Professional Development Fund - Apply (https://terplink.umd.edu/submitter/form/start/468869/)
- Veterans Crisis Fund - Apply (https://terplink.umd.edu/submitter/form/start/399007/)
- Advocacy for veteran issues on campus
- Exclusive veteran resources and opportunities
- Veterans-specific New Student Orientation in Fall and Spring (https://stamp.umd.edu/engagement/veteran_student_life/new_students/orientation/)
- Veteran-focused career and networking events - Join the Terrapin Military Network's LinkedIn Group (https://www.linkedin.com/groups/8481378/)
- Battle Buddy Peer Mentorship Program
- Veteran-specific scholarships - Application Info (https://stamp.umd.edu/engagement/veteran_student_life/current_students/veteran_scholarships/)
- Pat Tillman Partnered Institution - Application Info (https://pattillmanfoundation.org/tillman-scholars-military-scholarships/)
- Credit-bearing university transition courses (https://stamp.umd.edu/engagement/transfer_and_offcampus_student_life/transfer_2_terp_learning_community/)

Maryland is one of 15 Centers of Excellence for Veteran Student Success in the nation and received a generous grant through the Fund for the Improvement of Postsecondary Education (FIPSE) to further address the

academic, financial, physical and social needs of student Veterans on campus through the U.S. Department of Education.

For more information about programming or overall Veteran Student Life at the University of Maryland, please contact the VSL team at vetstudentlife@umd.edu and visit their website at http://veterans.umd.edu.

## Veteran Center

In addition to support and programming, Veteran Student Life offers a Veterans Center, which is available exclusively for UMD veterans and military-connected students located in Cole Field House (Room 1112), thanks to a generous donation from Board of Trustee member and former Secretary of the Navy Gordon England.

This center includes:

- Television
- Computers
- Free Printing
- Free Coffee
- Study Lounge
- Conference Room
- Video Conferencing

If you are a current student veteran or military-connected student that does yet have access to the Vet Center, please go to http://stamp.umd.edu/vetcenter/.

# ACADEMIC POLICIES AND PROCEDURES


- Academic Advising (p. 66)
- Academic Integrity and Student Conduct Codes (p. 67)
- Academic Records and Regulations (p. 69)
- Degree Information (p. 75)
- Prior Learning Credit (A/S Level, AP, BMT, CLEP, Credit-by-Exam, IB) (p. 78)
- Registration (p. 80)
- Student Information (p. 84)
- Transfer Credit (p. 84)


# Academic Advising

## Role of Advising

Academic advising is an integral part of each student's educational experience and it takes many forms. Academic advisors provide students with information on academic requirements needed for degree completion, help students plan for future graduate study or a career, and serve as a resource person. Academic advising is a shared responsibility between the student and the advisor.

- **Provide information on academic requirements needed for graduation.** Advisors assist students in developing an academic and career plan, monitor students in the major, and discuss how a course of study fits a particular academic or career interest. Advisors answer questions concerning a specific academic concern, such as problems with a particular class, and guide students through the registration process, including providing information on various registration blocks and what needs to be done to remove them.
- **Help students plan for future graduate study or career.** Advisors discuss how an academic major can prepare a student for his/her career, and what career options are available. Advisors refer students to the Career Center which provides career counseling and workshops on issues such as writing resumes and preparing for job interviews. They also inform students about internship opportunities and how credit can be earned, and provide information on study abroad programs that might enrich a student's academic experience as well as enhance their resume. Advisors inform students about graduate school opportunities and application procedures.
- **Serve as a campus resource.** Advisors assist students in obtaining support from other offices of the university. This includes informing students about possible scholarships or fellowships, and referring students to academic support units that provide tutoring or workshops on study skills, time management, and stress management. They may recommend that students seek counseling for stress, addictions, or trauma that may be affecting their academic work. Advisors inform students with physical and learning disabilities of the support available to them. They also encourage students to enrich their experiences by becoming involved on campus via social, political, academic, ethnic/cultural, sport and/or recreational student organizations and activities.

Some advisors are able to provide information on all of the above. Others specialize in a particular topic or area of concern. For example, a college/department may have a specific career advisor or study abroad coordinator. Students in upper level courses are often advised by faculty members who can assist with graduate school and career issues. Furthermore, some advisors work with specific populations, such as returning students, athletes, students with physical or learning disabilities, and students of color.

If you are not sure where to seek advising, contact your academic college. When requesting to meet with an advisor, specify what topics you wish to discuss to ensure that you are directed to the appropriate individual. Advising at the University of Maryland is normally a combination of professional advisors, located in many of the college offices, and faculty advisors. Please check your individual college to find out whom you need to see for academic advising. For more information, visit http://studentsuccess.umd.edu/resources/academic-advising/.

## Academic Advising and Degree Completion

All new students are required to attend Orientation where they will register for classes. During their first semester, students develop a four year plan based on templates provided for each major (see http://4yearplans.umd.edu). Each plan includes specific benchmark courses to be completed within a specific period of time. Four year plans must be approved by an advisor in order to register for subsequent semesters.

Students are required to complete the benchmark courses in their major in order to progress to graduation (see Student Academic Success-Degree Completion Policy (p. 66) below). Outlined in each four year plan, benchmark courses guide students in a step by step process to degree completion and demonstrate satisfactory progress in the major. Academic units conduct regular reviews of students' progress, and those students who are in danger of falling behind benchmarks will be required to work with an advisor to develop a plan to get back on track. Students who do not make progress may be required to select a new major in which they can be successful.

Many students change their majors over the course of their academic career. When doing so, students must first complete and have approved a new four year plan. Any student who completes ten semesters or 130 credits without completing a degree is subject to mandatory advising prior to registration for any subsequent semester. Students with exceptional circumstances or those who are enrolled in special programs are required to develop a modified graduation plan that is appropriate to their situations. In all cases, students are responsible for meeting progress expectations and benchmarks required for their degree programs.

It is recommended that all students seek advising assistance prior to course registration. Students should also consult with an advisor as circumstances change and four year plans need to be updated. Many colleges have mandatory advising prior to registering for a new semester.

Students placed on probation are required to consult an academic advisor in their college prior to the beginning of a new semester but no later than the end of the schedule adjustment period. Students will not be allowed to add or drop courses, or to register during any probation semester without the approval of an academic advisor in their college.

## Student Academic Success-Degree Completion Policy

The goal of the Student Academic Success-Degree Completion Policy is to promote undergraduate student success. The policy establishes a

structured framework and criteria to guide all students to completion of an undergraduate degree within a reasonable period of time.

Full-time degree seeking students normally are expected to complete the undergraduate program in four years. Within this timeframe, all students are expected to demonstrate continuing progress in their majors by completing prerequisite or required courses with the appropriate grades, and by completing other requirements consistent with graduation progress or benchmarks established by their academic units (see 2, below). It is ultimately the responsibility of the student to meet these requirements. To help students meet these requirements the university will facilitate student progress to degree by providing enhanced student advising through the following measures:

1. Academic units will create 4-year graduation templates that will specify the degree requirements for each major and provide semester-by-semester course schedule models that achieve graduation within four years. Students will prepare individualized plans for completing their degrees in accordance with the academic units' 4-year graduation plans. Students are also encouraged to periodically update their plans with the assistance of their academic advisors.
2. Academic units will establish graduation progress benchmarks for each academic major. These will specify the credit and course criteria that will indicate satisfactory progress to degree. Academic units will establish schedules for regular periodic reviews of student progress, and students who are in danger of falling behind the program benchmarks will be required to consult with an advisor prior to registration.
3. Students who do not achieve the progress expectations or benchmarks will be permitted to continue in the major only upon the approval of the dean of their college. If it becomes necessary for students to change majors, they will be given assistance in identifying and enrolling in a suitable alternative major.
4. When students change majors, they will be required to present an academic plan to the new major unit that demonstrates their ability to complete their degree in a timely manner.

While some students will have valid reasons to take additional time to degree, any student who completes 10 semesters or 130 credits[1] without completing a degree will require mandatory advising in his/her college prior to registration for subsequent semesters. Students with exceptional circumstances, students whose programs include minors, double majors/degrees, enrichment activities or who need to pursue a degree part time will have on record approved plans with approved program benchmarks. Program benchmarks will be developed by the student in consultation with and approved by an advisor.

[1] Degree credits include University of Maryland credits and all applicable transfer credits from other postsecondary institutions. The equivalent semesters applicable to the enrollment limit for transfer credits will be determined by dividing all transfer credits applicable to the degree by 15. However, Advanced Placement (AP) and International Baccalaureate (IB) credits, and credits earned for college courses taken while in high school and prior to matriculation at a postsecondary institution, will not count toward this semester or credit limitation. Such courses may, however, count toward degrees. Summer Session and Winter term will not be included in the semester count. Credits earned during Summer Sessions or Winter terms will be included in the credit count.

References to the policy: http://ugst.umd.edu/academicsuccess.html and to frequently asked questions: http://ugst.umd.edu/faqs-successpolicy.html.

# Academic Integrity and Student Conduct Codes

## Academic Integrity

The University of Maryland is an academic community. Its fundamental purpose is the pursuit of knowledge. Like all other communities, the university can function properly only if its members adhere to clearly established goals and values. Essential to the fundamental purpose of the university is the commitment to the principles of truth and academic honesty. Accordingly, the *Code of Academic Integrity* is designed to ensure that the principle of academic honesty is upheld.

The university's *Code of Academic Integrity* is a nationally recognized honor code, administered by a Student Honor Council. Any of the following acts, when committed by a student, shall constitute academic dishonesty:

- **Cheating:** fraud, deceit, or dishonesty in any academic course or exercise in an attempt to gain an unfair advantage and/or using or attempting to use unauthorized materials, information, or study aids in any academic course or exercise.
- **Fabrication:** unauthorized falsification or invention of any information or citation in any academic course or exercise.
- **Facilitating Academic Dishonesty:** knowingly helping or attempting to help another to violate any provision of this Code.
- **Plagiarism:** representing the words or ideas of another as one's own in any academic course or exercise.
- **Self-Plagiarism:** the reuse of substantial identical or nearly identical portions of one's own work in multiple courses without prior permission from the current instructor or from each of the instructors if the work is being submitted for multiple courses in the same semester.

If it is determined that an act of academic dishonesty has occurred, a grade of "XF" is the expected sanction for undergraduate students. The grade of "XF" is noted on the academic transcript as failure due to academic dishonesty. Lesser or more severe sanctions may be imposed when there are circumstances to warrant such consideration. Suspension or expulsion from the university may be imposed even for a first offense.

***Refer to policy for details:*** III-1.00(A) University of Maryland Code of Academic Integrity *(*https://policies.umd.edu/academic-affairs/university-of-maryland-code-of-academic-integrity/*)*

## Honor Pledge

In 2002, the university adopted an honor pledge. The honor pledge is a reminder that University of Maryland students carry primary responsibility for academic integrity because the value of their degrees depends on it. On all work submitted for assessment that is not specifically exempted by the instructor, students are encouraged to write and sign the following pledge:

*"I pledge on my honor that I have not given or received any unauthorized assistance on this assessment."*

Faculty are urged to emphasize the importance of academic honesty and of the honor pledge as its symbol. Failure to sign the honor pledge is not a violation of the *Code of Academic Integrity (Code)*, but neither is it a defense in case of violation of the *Code*. Signing or non-signing of the pledge will not be considered in grading or in student conduct procedures.

***For more information regarding the Code of Academic Integrity, the honor pledge, or the Student Honor Council please refer to*** http://studentconduct.umd.edu ***or contact the Office of Student Conduct at*** studentconduct@umd.edu***.***

# Student Conduct

The *Code of Student Conduct* was created to ensure the safety and security of the university community. The Office of Student Conduct seeks to balance the rights and responsibilities of all individuals within the community, while upholding the integrity and values of the university community. The Office fosters a climate of accountability and responsibility for one's actions while educating and supporting students in reaching their full potential as citizens.

Compared to disciplinary systems at many universities, University of Maryland students are given unusual authority and responsibility for management of the campus process. Cases that may result in suspension or expulsion are heard by conduct boards, comprised entirely of students from the University Student Judiciary. Less serious cases are resolved in disciplinary conferences conducted by university staff members. Acts of violence, intimidation, disruption, or rioting; substantial theft or vandalism; fraud or forgery; use or distribution of illegal drugs; are forms of misconduct that most frequently result in dismissal from the university. Students accused of violating university disciplinary regulations are encouraged to discuss the allegations with their parents or guardians, an advisor, and with appropriate university staff members.

# Prohibited Conduct

A complete list of conduct considered prohibited as well as procedures for resolving allegations of misconduct may be found in the *Code of Student Conduct* at V-1.00(B) University of Maryland Code of Student Conduct (https://policies.umd.edu/student-affairs/university-of-maryland-code-of-student-conduct/) or through the Office of Student Conduct website at http://studentconduct.umd.edu.

The Code of Student Conduct applies on and off-campus. The following are some examples of what constitutes prohibited conduct by individual students and/or student groups/organizations and are subject to disciplinary action:

- Causing physical harm or apprehension of harm
- Use, possession, or storage of any weapon
- Engaging in hazing activities
- Distribution or possession for purposes of distribution of any illegal drug (including cannabis)
- Use or possession of any illegal drug or controlled substances (including cannabis)
- Interfering with the freedom of expression of others
- Use or possession of alcohol under the legal age of consumption
- Provision of alcohol to persons under the legal age of consumption
- Use or possession of false identification
- Theft
- Destruction or damage to property
- Disorderly and disruptive actions
- Falsifying information to the university

***Note:*** *This* Code *does not apply to student sexual misconduct. The policy and procedures applicable to student sexual misconduct is VI-1.60(A) University of Maryland Sexual Misconduct Policy & Procedures. Refer to policy for details:* VI-1.60(A) University of Maryland Policy and Procedures on Sexual Harassment and Other Sexual Misconduct *(*https://policies.umd.edu/general-administration/university-of-maryland-policy-and-procedures-on-sexual-harassment-and-other-sexual-misconduct/*)*

For more information regarding **student conduct issues**, contact the Office of Student Conduct at studentconduct@umd.edu or visit http://studentconduct.umd.edu.

# Other Policies and Regulations Pertaining to Students

In addition to the *Code of Student Conduct* and the *Code of Academic Integrity* students enrolled at UMD are expected to be aware of, and to abide by, the policies summarized below. Information about where the complete texts may be consulted (other than the *Code of Student Conduct*) follows each summary. Descriptions of these policies are for general information only. Modifications may be made, or other policies added, throughout the year. Please contact the Office of Student Conduct for additional information.

**Acceptable Use of Information Technology Resources Policy** defines standards for reasonable and acceptable use of university computer resources, including electronic mail: X-1.00(A) University of Maryland Policy on Acceptable Use of Information Technology Resources (https://policies.umd.edu/miscellaneous-policies/university-of-maryland-policy-on-acceptable-use-of-information-technology-resources/).

**Campus Parking Regulations** cover registration, permits, fees, violations, enforcement, fines, towing and impounding, reviews, carpool programs, special events parking, emergency parking, and a number of other areas. The parking regulations are in effect to help ensure safe and adequate parking for the campus community and are designed to provide parking spaces as equitable as possible for students, faculty, staff and campus visitors. Parking regulations are updated annually and are provided electronically to all who register for parking. For more information visit: http://transportation.umd.edu/parking/.

**Event and Guest Services Policies** regulate reservation of university facilities, advertising, co-sponsorship, cancellation and postponement, and various other matters relating to programs of student organizations. (Published in the Event and Guest Services Policy Manual) For more information, contact the Center for Campus Life in the Adele H. Stamp Student Union or visit: Event & Guest Services Policy Manual (http://stamp.umd.edu/events/event_guest_services/policies/).

**Guidelines for Expressive Activity** establishes guidelines for activities involving free expression, including demonstrations, chalking, and picketing. It stipulates that the university will take steps necessary both to protect the right of individuals or groups to demonstrate and to protect the freedom of speech, assembly, and movement of any individual or group. For more information visit: VI-4.10(A) University of Maryland Policy and Procedures for the Use of Facilities and Outdoor Spaces (https://

policies.umd.edu/general-administration/university-of-maryland-policy-and-procedures-for-the-use-of-facilities-and-outdoor-spaces/).

**Policy on Hazing** defines hazing as conduct engaged in, whether on or off university premises, for the purpose of admission, initiation, or continued association with a group or organization. It is recklessly or intentionally:

1. engaging in or enabling an act or situation that subjects another person to the risk of
   a. physical harm;
   b. emotional distress, humiliation, degradation;
   c. harm from unreasonable requirements which interfere with a student's ability to function as a student, including financial requirements outside of membership dues;
   d. diminished physical or mental capacity, or
2. causing or encouraging another person to violate any law or university regulation.

   The implied or express consent of another person is not a defense under this section.
   V-1.00(K) University of Maryland Policy and Procedures on Hazing (https://policies.umd.edu/student-affairs/university-of-maryland-policy-and-procedures-on-hazing/)

**Residence Hall Rules** define prohibited conduct in and around campus residence halls, buildings, and at Department of Resident Life sponsored activities, in addition to that which falls under the Residence Halls/Dining Services Agreement, *Code of Student Conduct*, and federal, state and local laws. The rules also specify standard sanctions for rule violations, and provide for an adjudication process. For more information, contact the Department of Resident Life or visit http://reslife.umd.edu.

**Sexual Misconduct Policy and Procedures** defines prohibited behavior including possible sanctions for violations of the policy, offers guidance for complainants including how to make a formal report to the university and to the police. Additionally, the policy defines confidential resources on campus for reporting. A collection of university and community resources are provided for parties, including possible interim protective measures. For more information contact the Office of Civil Rights and Sexual Misconduct at http://ocrsm.umd.edu.

**Student Organization Registration Guidelines** define student organizations, responsibilities of officers, and registration, and establish types of registration, a registration process, certain privileges of registered student organizations in good standing, sanctions which may result from registration review, and guidelines for constitutions. For more information contact the Student Organization Resource Center located on the ground floor in the Stamp Student Union or visit: Student Organization Registration Requirements (http://stamp.umd.edu/activities/student_org_resource_center_sorc/registration/registration_requirements/).

# Academic Records and Regulations

The Office of the University Registrar, located on the first floor of the Clarence M. Mitchell Jr. Building, is responsible for maintaining student records and issuing official transcripts.

# Absences, Assessment, Attendance, and Syllabus

## Absences

Absences from courses in which in-class participation forms a significant part of the work of the course (such as lab or discussion courses) shall be handled by instructors in accordance with the general policies of their academic units.

An excused absence is an absence for which the student has the right to receive, and the instructor has the responsibility to provide, academic accommodation.

Excused absences must be requested promptly and must be supported by appropriate documentation. Excused absences do not alter the academic requirements for the course. Students are responsible for information and material missed on the day of absence. Students are within reason entitled to receive any materials provided to the class during the absence. Students are responsible for determining what course material they have missed and for completing required exercises in a timely manner.

Events that justify an excused absence include:

- religious observances;
- mandatory military obligation;
- physical or mental health condition of the student or illness of an immediate family member;
- participation in university activities at the request of university authorities; and
- compelling circumstances beyond the student's control (e.g., death in the family, required court appearance).

Absences stemming from work duties other than military obligation (e.g., unexpected changes in shift assignments) and traffic/transit problems do not typically qualify for excused absence.

Students claiming excused absence must notify the course instructor in a timely manner and provide appropriate documentation. The notification should be provided either prior to the absence or as soon afterwards as possible. In the case of religious observances, athletic events, and planned absences known at the beginning of the semester, the student must inform the instructor during the schedule adjustment period. All other absences must be reported as soon as is practical. The student must provide appropriate documentation of the absence. The documentation must be provided in writing to the instructor by the means specified in the syllabus.

1. For medically necessitated absences: Students may, one time per course per semester, provide a self-signed excuse as documentation of an absence from a single class (e.g., lecture, recitation, or laboratory session) that does not coincide with a major assessment or assignment due date. For all other medically necessitated absences, students must provide documentation from a physician or the University Health Center, upon request of the course instructor.
2. For all other absences students must provide verifiable documentation upon request (e.g., religious calendar, court summons, death announcement, etc.).

In keeping with USM policy, students shall not be penalized because of observances of their religious holidays and shall be given an opportunity, whenever feasible, to make up within a reasonable time any academic

assignment that is missed due to individual participation in religious observances. For all other excused absences, the student must be provided academic accommodation. The accommodation provided should, within reason, neither advantage nor disadvantage either the student or the rest of the class.

If the accommodation is a makeup assessment, it must be timely, at a time and place agreed upon by the instructor and student, cover the same material, and be at the same level of difficulty as the original assessment. In the event that a group of students requires the same makeup assessment, one time and place may be scheduled. The makeup assessment must not interfere with the student's regularly scheduled classes. If makeup work is not feasible, an alternate accommodation for excused absences will be provided. Alternate accommodations will be according to the principles established by the unit offering the course. Students who miss a substantial number of class sessions or course assignments should seek guidance from an academic advisor with respect to academic options.

Extended absences stemming from active military duty are addressed in the USM V-7.00 Policy on Students who are called to Active Military Duty during a National or International Crisis or Conflict. Absences related to a student's disability are addressed in the VI-1.00(D) University of Maryland Disability & Accessibility Policy and Procedures.

Although the university attempts to accommodate the religious beliefs of all of its members, it functions within a secular environment and is limited in the extent to which it can interrupt its normal operations. The president shall determine when it is appropriate for the campus community to restrict rescheduling examinations or other significant assessments on the dates of religious observance.

## Assessment

Students can expect to receive a reasonable number of graded assessments or progress reports to permit evaluation of their performance. These assessments shall be returned to the students in a timely manner. Students will have reasonable opportunity to review graded assignments, such as papers and examinations (including the final examination or assessment), after evaluation by the instructor and while materials are reasonably current. Information about assessments and determination of the final course grade will be presented in a course syllabus.

Ordinarily, in-class assessments are given during class hours in accordance with the regularly scheduled time and place of each course. Students are responsible for knowing the information in the syllabus, including dates of assessments and due dates of graded assignments. Assessments may take a variety of forms and need not be classroom-based written examinations.

**Final Examination:** Final examinations worth more than 10% of the course grade shall be administered during the final examination period when one is established and published by the Office of the University Registrar. Unit-level guidelines may require that specific courses administer final exams. When a final examination period is scheduled, no final examinations shall be administered on Reading Day or during the last week of classes, defined as the final seven calendar days of the semester ending on the "Last day of classes" published in the academic calendar.

When a final examination is administered during finals week, no exams or alternative assessments worth more than 10% of the course grade may be due or administered during the last week of classes.

If a course has no final examination administered during the final examination period, alternative end-of-semester assessments (e.g., term papers, final projects, presentations, performances, lab practicals) worth more than 10% of the course grade may be due during the last week of classes, if detailed expectations for the assessments are provided by the end of the ninth week of classes. Alternatively, these end-of-semester assessments may be due during the time scheduled for the final exam of the course during the final examination period, but they may not be due on Reading Day.

Each faculty member shall retain, for one full semester (either fall or spring) after a course is ended, the students' final assessments in the appropriate medium. If a faculty member goes on leave for a semester or longer, or leaves the university, the faculty member shall leave the final assessments and grade records for the course with the department chair, the program director, or the dean of the college or school, as appropriate.

All in-class final examinations must be held on the date and at the time listed in the official final examination schedule. Out-of-class final examination or equivalent assessments shall be due on the date and at a time listed in the official final examination schedule. Changes to final examination schedules and locations must be approved by the chair of the department or the dean of the college, or the appropriate designee.

Students may seek to reschedule final examinations so that they have no more than three examinations on any given day. It is the responsibility of the student to initiate the rescheduling or be responsible for taking the examination as originally scheduled. When rescheduling is desired, students should first contact their instructors. Students who encounter difficulty rescheduling examinations with their instructors are advised to contact the dean's office of their academic program for help. Faculty members are expected to accommodate students with legitimate rescheduling requests.

## Attendance

Students are expected to take full responsibility for their own academic work and progress. Students, to progress satisfactorily, must meet all of the requirements of each course for which they are registered. Students are expected to attend classes regularly. Consistent attendance offers students the most effective opportunity to gain command of course concepts and materials.

In-class participation may be an ongoing requirement and an integral part of the work of some courses. In-class assessments may occur, sometimes without advance notice. The syllabus will specify expectations about in-class participation and its relationship to the final course grade.

Except in cases where in-class participation forms a significant part of the work of the course, attendance should not be used in the computation of grades; assignment of a course grade on some basis other than performance in the course is prohibited by university policy. Recording student attendance is not required of the faculty.

## Syllabus

There shall be a complete course syllabus for the current term made available to students no later than the first day of class at the beginning of each undergraduate course. Any changes to the syllabus made after the first day of class must be announced and must be clearly represented with the date of the revision. The course syllabus will specify in general terms:

- a course description including course objectives;
- the content and nature of assignments;
- the schedule of major graded assessments (e.g., examinations and due dates for projects and papers);
- the examination and/or assessment procedures;
- the mode of communication for excused absences;
- the basis for determining final grades, including if the plus/minus grading system will be used and the relationship between in-class participation and the final course grade;
- reference to the list of course-related policies maintained by the Office of Undergraduate Studies.

### Resolution of Problems

Any concerns regarding the syllabus, attendance, absences and assessment should be addressed to the course instructor. In the case of unresolved concerns, students are encouraged to consult the following policies for appropriate resolution.

Relevant University Policies:

- **III-1.20(B) University of Maryland Procedures for Review of Alleged Arbitrary and Capricious Grading--Undergraduate Students**
- **V-1.00 (A) University Of Maryland Policy on the Conduct of Undergraduate Courses and Student Grievance Procedure**
- **V-1.00(G) University of Maryland Policy on Excused Absence**

## Academic Clemency

**III-1.30(A) University of Maryland Policy and Procedures on Academic Clemency** (Approved by the President August 1, 1991, Amended April 21, 2016)

Undergraduate degree-seeking students who have re-enrolled at the University of Maryland in pursuit of their initial baccalaureate degree are eligible, after a separation of at least five calendar years from the university (determined by the last day of the last attended semester), for academic clemency. Academic clemency is granted one time only, and subsequent requests will be denied.

Application for academic clemency must be filed with the Office of Undergraduate Studies (or designee) as soon as possible, and before the end of the first semester of the student's return to the university. Clemency will be recorded on the student's record following the completion of the student's first semester of re-enrollment. Under clemency, up to 16 attempted credits of D+, D, D-, and F grades from courses previously completed at the University of Maryland will be removed from the calculation of the student's cumulative grade point average (GPA).

Attempted credits and grades for which clemency is granted will:

1. remain on the student's transcript;
2. not be used to satisfy degree requirements;
3. be excluded from the student's cumulative GPA calculation;
4. remain included in the calculation of Latin Honors; and
5. adhere to the institution's repeat guidelines and be included in the student's repeat limits.

The granting of clemency is contingent upon the student's satisfactory completion of the initial semester of re-enrollment, and will be recorded by the university at that time. If the student's first semester of registration upon re-enrollment is canceled, or the student withdraws from the semester, clemency will not be granted (and the student will retain the option of filing for clemency in the future).

***Refer to policy for details:*** III-1.30(A) University of Maryland, College Park Policy and Procedures on Academic Clemency ***(***https://policies.umd.edu/policy/38967351-41a9-4682-a4aa-dff516d13d99/***)***

## Academic Dismissal and Probation

Consistent with the University of Maryland Student Academic Success - Degree Completion Policy (p. 66), it is the intent of the university that its students make satisfactory progress toward their degree objectives, and achieve academic success. If a student has special circumstances that make it impossible to complete a normal course load, the student must meet with an advisor to discuss the circumstances, the student's plans for continued progress toward a degree, and the implications for continued enrollment.

The following guidelines for retention of students refer separately to semester (Fall and Spring) and Winter or Summer terms:

1. Academic retention is based solely on grade point average (GPA). A minimum of 120 successfully completed course credits is required for graduation in any degree curriculum. Individual colleges, schools, and departments may establish higher requirements for graduation. Students must consult the appropriate college, school, or department for specific information.
2. Satisfactory Performance is defined as the achievement of a cumulative GPA of 2.0 or above. Students whose semester GPA falls below 2.0 are encouraged to meet with their advisors regarding the development of a plan that will appropriately respond to the student's academic difficulties and lead to academic improvement. Individual colleges, schools and departments may establish separate requirements for mandatory advising. Students must consult the appropriate college, school, or department for specific information.
3. Unsatisfactory Performance is defined as the achievement of a cumulative GPA of less than 2.0. Students will be placed on Academic Probation following any semester in which a 2.0 cumulative GPA is not achieved. Normally, students will be placed on Academic Dismissal if they are unable to raise their cumulative GPA to 2.0 or higher at the end of their probationary semester.

### Academic Dismissal

1. Students who have earned 60 or more credits will be dismissed if their cumulative GPA remains below 2.0 for two consecutive semesters (excluding winter and summer terms). Students who attain a cumulative GPA of 2.0 in the preceding winter or summer term will not be subject to dismissal.
2. Students who have earned fewer than 60 credits will be dismissed following any probationary semester in which they fail to attain a minimum 2.0 semester GPA and complete the requisite credits detailed under Academic Probation. Students who attain a cumulative GPA of 2.0 in the preceding winter or summer term will not be subject to dismissal.
3. Students who have been academically dismissed and who are reinstated will be academically dismissed again if a cumulative GPA of at least 2.0 is not achieved by the end of the first semester after reinstatement. Reinstated students will not be allowed to add or drop courses, or to register during any semester without the approval of an academic advisor in their college, unless a cumulative GPA of at least 2.0 is achieved.

4. The Office of the University Registrar will notify the appropriate university offices when students are academically dismissed and will note the dismissal on the student's academic record.
5. The Student Success Office will notify students via email. The email will include a statement that registration for the next semester (excluding winter or summer terms) will be canceled.

### Academic Probation

Students will be placed on academic probation if their cumulative GPA falls below 2.0. Normally, a student is expected to attain a 2.0 cumulative GPA at the end of any probationary semester. Students who fail to achieve a 2.0 cumulative GPA at the end of their probationary semester may be academically dismissed, depending on their credit level as detailed below.

1. Students who have earned 60 credits or more will be dismissed from the university in the event their cumulative GPA remains below 2.0 at the end of their probationary semester. Students who are on probation and attain a cumulative GPA of 2.0 at the end of a winter or summer term will not be subject to dismissal in the subsequent semester.
2. Students who are on academic probation and have earned fewer than 60 credits will be permitted to continue on academic probation if a minimum semester GPA of 2.0 is achieved in each semester of probation.
   a. Full-time students must complete 9 or more credits in each semester of probation. A completed credit is defined as credit for any course in which a student receives a grade of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-. F, P, or S.
   b. Students who meet this requirement will be permitted to continue on probation until the close of the semester (excluding winter and summer terms) in which they attain a cumulative GPA of 2.0.
   c. However, students who are on probation will be dismissed if they have not achieved a cumulative GPA of 2.0 at the end of the semester in which they complete 60 credits.
   d. Students who are on probation and attain a cumulative GPA of 2.0 at the end of a winter or summer term will not be subject to dismissal in the subsequent semester.
3. The Office of the University Registrar will notify students when they are placed on academic probation. Such notices will include a requirement that the students consult an academic advisor in their colleges early in the probationary semester and in no event later than the beginning of the early registration period for the next semester. The Office of the University Registrar will notify the colleges of students who are placed on academic probation and will note the academic probationary status on the students' academic record.
   a. The academic advisors will assist students in developing appropriate plans for achieving satisfactory academic performance.
   b. Students who are placed on probation will not be allowed to add or drop courses, or register without the approval of an academic advisor in their college.

### Application for Academic Reinstatement

1. Students who have been dismissed may apply to the Faculty Petition Board for reinstatement on the grounds of mitigating circumstance.
2. The application for reinstatement must include a written statement explaining the circumstances leading to dismissal and a proposed plan to remedy those circumstances. Students are encouraged to consult with their academic advisors prior to submitting their applications to the Faculty Petition Board.
3. Applications for reinstatement can be completed at http://studentsuccess.umd.edu.

### Faculty Petition Board

1. The Student Success Office is responsible for submitting the reinstatement applications for review to the Faculty Petition Board, which is comprised of faculty appointed by the Senior Vice President for Academic Affairs and Provost. The Board is the sole arbiter of reinstatement applications.
2. The Faculty Petition Board has the discretion to establish the terms for reinstatement, including the requirements for achieving academic improvement and developing an academic plan for success.
3. The Student Success Office will forward the Board's decision to students at the email address supplied on the application.

## Computation of Grade Point Average

GPA is computed by dividing the total number of quality points accumulated in courses for which a grade of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F, or XF has been assigned by the total number of credits attempted in those courses. Courses for which a mark of P, S, I, NGR or W has been assigned are not included in computing the GPA. Each letter grade has a numerical value: A+=4, A=4, A- = 3.7; B+=3.3, B=3, B- = 2.7; C +=2.3, C=2, C- = 1.7; D+=1.3, D=1, D- = 0.7; F = 0. Multiplying this value by the number of credits for a particular course gives the number of quality points earned for that course.

See Repeat Course Guidelines (p. 75) to determine the effect of repeated courses in the calculation of GPA.

## Election to Phi Beta Kappa

Organized in 1776, Phi Beta Kappa is the oldest and most widely respected academic honorary society in the United States. Invitation to membership is based on outstanding scholastic achievement in studies of the liberal arts and sciences. Student members are chosen entirely on the basis of academic excellence; neither extracurricular leadership nor service to the community is considered. Election is held twice a year, once in the fall and once in the spring semester.

The process for election to Phi Beta Kappa involves a review in November for those who graduated the previous August or those who will graduate in December, and a review in March for those graduating in May. For juniors the review occurs in March. The review is conducted by a select committee of faculty members representing the humanities, social sciences, and natural sciences. The committee reviews transcripts of all students with qualifying grade point averages. Whether a student qualifies for membership in Phi Beta Kappa depends on the quality, depth, and breadth of the student's record in liberal courses. The final decision for election rests with the faculty committee and faculty Phi Beta Kappa members.

Requirements for consideration of membership in Phi Beta Kappa at the University of Maryland, College Park campus chapter include:

1. **Grade Point Average:** For seniors a grade point average of at least 3.75 overall as well as in all liberal arts and sciences courses taken. For juniors the minimum grade point average is at least 3.85, both overall and in all liberal arts and sciences course taken.
2. **Residence:** At least 60 credit hours must be taken at the University of Maryland, College Park.

3. **Liberal Courses:** For seniors, at least 90 credit hours in courses in the liberal arts and sciences (where "liberal" courses are to be distinguished from professional or technical courses), at least 45 of which must be taken at the University of Maryland, College Park. For juniors, at least total 60 credit hours must be completed, in the liberal arts and sciences; of these, at least 45 must be taken at the University of Maryland, College Park. Students would ordinarily be majors in one of the programs in the liberal arts and sciences. However, students with the requisite number of liberal credit hours can be admitted if they have completed at least 5 courses (15 credit hours or more) for seniors and for juniors in a single liberal arts and sciences department/program at UMCP.
4. **Required Courses:** One semester of mathematics, which must be fulfilled by college-level credit hours (including AP or IB credit, but not exempted by SAT); one college semester or laboratory sciences (which cannot be fulfilled by AP or IB) and two college semesters of the same foreign language at the elementary level, or at least one semester above that level. The language requirement may also be satisfied by completion of four years of the same language other than English at the high-school level or above, or the equivalent. Students with such a foreign language background who wish to be considered for admission to Phi Beta Kappa should notify the Phi Beta Kappa office (2110 Marie Mount Hall) in writing and provide the appropriate documentation (an official high school transcript) prior to the month of consideration.
5. **Distribution:** The credit hours presented for Phi Beta Kappa must contain at least nine liberal arts credit hours in each of the three following areas:
   a. arts and humanities,
   b. behavioral and social sciences,
   c. natural sciences and mathematics.

Only one distribution area can be completed entirely through transfer courses, but transfer courses can be applied as part of the total for the two remaining areas. No more than one areas can be fulfilled as an AP or IB course, and only one AP or IB course and be applied to that area.

In general, Phi Beta Kappa will accept the General Education classification of courses.

Meeting the above requirements does not guarantee election to Phi Beta Kappa. The judgment of the resident faculty members of Phi Beta Kappa on the quality, depth, and breadth of the student's record is the deciding factor in every case. Any questions about criteria for election to Phi Beta Kappa (including equivalency examinations in foreign languages) should be directed to the Phi Beta Kappa Office, pbk@umd.edu, and may ultimately be referred to the Executive Secretary, Dr. Christina Walter.

# Graduation Applications and Latin Honors

## Graduation Applications

Each candidate for a degree or certificate must file a formal application with the Office of the University Registrar. The deadline for application is the end of the schedule adjustment period for the semester in which the student plans to graduate, or at the end of the first week of the second summer session for August degrees.

In all cases, graduation applications must be filed at the beginning of the student's final semester before receiving a degree. Graduation applications are available online (https://registrar.umd.edu/graduation-diplomas/degree-requirements/undergraduate-degree-requirements/latin-honors/) or at the Office of the University Registrar, 1st floor Clarence M. Mitchell, Jr. Building.

## Latin Honors

Summa cum laude, magna cum laude and cum laude are the highest Latin honors that the university bestows for sustained excellence in scholarship. They generally are awarded to the top 10% of all students graduating in each college or school, and all students receiving at least a 3.9 grade-point average. Summa cum laude is awarded to students with a GPA equal to or greater than the highest two percent of GPAs from the specific college or school averaged over the previous academic year, magna cum laude to the next highest three percent, and cum laude to the following five percent. To be eligible for this recognition, at least 60 semester hours must be earned at the university or at a program in which credit earned is counted as University of Maryland, College Park, resident credit (contact the Office of the University Registrar to determine program eligibility). No more than 6 credits taken pass/fail or satisfactory/fail grade modes shall count toward the 60-hour minimum. No student with a grade-point average of less than 3.3 will be considered for a Latin honor. As stated in the Academic Clemency (p. 71) policy "Attempted credits and grades for which clemency is granted will: remain included in the calculation of Latin Honors". See the Office of the University Registrar's website (https://registrar.umd.edu/graduation-diplomas/degree-requirements/undergraduate-degree-requirements/latin-honors/) for a list of minimum GPA cut-offs (for the current year) for each honor designation, published by college or school.

# Honors (Dean's List)

Students who meet the following criteria will be awarded Semester Academic Honors (Dean's List) each semester (*fall and spring only*):

- Undergraduate students only.
- Complete 12 or more credits with the regular grading method.
- Semester GPA of 3.5 or higher.
- Pass-Fail, Satisfactory/unsatisfactory, and audit courses are not included in the determination of credit load.
- "Semester Academic Honors" will be noted on the student's academic record.

# Incompletes

The mark of 'I' is an exceptional mark that is an instructor option. It is given only to a student whose work in a course has been qualitatively satisfactory, when, because of illness or other circumstances beyond the student's control, the student has been unable to complete some small portion of the work of the course. In no case will the mark 'I' be recorded for a student who has not completed the major portion of the work of the course.

1. The Incomplete Contract form must be submitted to the dean of the college offering the course within six weeks after the grade submission deadline (if a grade hasn't already been submitted). If any Incomplete Contract is not completed within the six week period, the instructor will convert the 'I' to the appropriate grade.
2. The student will remove the 'I' by completing work assigned by the instructor; it is the student's responsibility to request arrangements for the completion of the work. The work must be completed by the time stipulated in the contract, usually by the end of the next semester, but in any event, no later than one year. If the remaining work for the course as defined by the contract is not completed on

schedule, the instructor will convert the 'I' to the grade indicated by the contract.

3. Exceptions to the stated deadline may be granted by the student's dean (in negotiation with the faculty member or the faculty member's dean) upon the written request of the student if circumstances warrant further delay.
4. If the instructor is unavailable, the department chair, upon request of the student will make appropriate arrangements for the student to complete the course requirements.
5. It is the responsibility of the instructor or department chair concerned to submit the grade promptly upon completion of the conditions of the Incomplete Contract.
6. The 'I' cannot be removed through re-registration for the course or through credit by examination. An 'I' mark is not used in the computation of quality points or cumulative grade point averages.

# Marking System

The following symbols are used on the student's permanent record for all courses in which the student is enrolled after the initial registration and schedule adjustment period: A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F, XF, I, P, S, W, and AU.

- A+, A, A- denotes excellent mastery of the subject and outstanding scholarship. In computations of cumulative or semester averages, a grade of A+ or A will be assigned a value of 4.0 quality points per credit hour. A grade of A- will be assigned 3.7 quality points per credit hour.
- B+, B, B- denotes good mastery of the subject and good scholarship. A grade of B+ is assigned a value of 3.3 quality points per hour. A grade of B is assigned a value of 3.0 quality points per credit hour. A grade of B- is assigned a value of 2.7 quality points per hour.
- C+, C, C- denotes acceptable mastery of the subject. A grade of C + is assigned a value of 2.3 quality points per hour. A grade of C is assigned a value of 2.0 points per credit hour. A grade of C- is assigned a value of 1.7 quality points per credit hour.
- D+, D, D- denotes borderline understanding of the subject, marginal performance, and it does not represent satisfactory progress toward a degree. A grade of D+ is assigned 1.3 points per credit hour. A grade of D is assigned a value of 1.0 quality point per credit hour. A grade of D- is assigned 0.7 quality points per credit.
- F denotes failure to understand the subject and unsatisfactory performance. A grade of F is assigned a value of 0.0 quality points per credit hour.
- XF denotes failure due to academic dishonesty. An XF is treated in the same way as F for the purposes of cumulative average.
- I is an exceptional mark that is an instructor option. It is only given to a student whose work has been qualitatively satisfactory, when, because of illness or other circumstances beyond the student's control, he or she has been unable to complete some small portion of the work of the course. In no case will the mark 'I' be recorded for a student who has not completed the major portion of the work of the course. For further explanation see "Incompletes" above.
- P is a student option mark, equivalent to a grade of C- or better. This mark is not used in the computation of the grade point average. The student must select this option using Registration Drop/Add by the end of the Schedule Adjustment Period. For a full explanation see "Pass-Fail Grading" below.
- S is a department option mark used to denote satisfactory performance. This mark is not used in the computation of the grade point average.
- W indicates withdrawal from a course after the end of the Schedule Adjustment Period. This mark is not used in the computation of the grade point average.
- AU is a student option mark. This mark does not imply attendance or any other effort in the course, therefore will not count as earned credit. This mark is not used in the computation of the grade point average. The student must select this option using Registration Drop/Add by the end of the Schedule Adjustment Period.

***Refer to policy for details:*** III-6.20(A) University of Maryland Grading Symbols and Notations Used on Academic Transcripts ***(***https://policies.umd.edu/policy/8081c794-90e6-43d1-9ced-62c80a112119/***)***

## Additional Record Notations

In addition to the above marks, there are provisions for other record or transcript notations that may be used based on university policy and individual circumstances.

### Duplicate Course

DUPLICATE COURSE is used to indicate two courses with the same course content. The second course is counted in the cumulative totals unless an exception is made by the dean.

### Academic Clemency Removed

ACD CLEMENCY-REMOVED is noted when academic clemency has been granted for a course. Up to 16 credits can be removed from the calculation if the student's cumulative grade point average.

# Mid-Term Grades

Mid-Term Grades shall be submitted for undergraduate students as detailed below. These grades are an important component of student success, as they provide timely feedback to students about the university's academic expectations. Mid-term Grades are used to inform students of their performance in the course during roughly the first half of the semester; they are used for advising purposes and are not recorded on the student's academic transcript.

1. Mid-Term Grades must be submitted for all of the following:
   a. Undergraduate students enrolled in their first year (fewer than 30 credits earned at the University of Maryland),
   b. Undergraduate students in all 0xx, 1xx, and 2xx level courses,
   c. Student athletes in undergraduate courses.
2. Mid-Term Grades are due eight (8) weeks after the start of the semester.
3. Department Chair or Unit Head must approve any courses for which Mid-Term Grades cannot be issued.
4. Instructors who have students who require Mid-Term Grades will be prompted to submit Mid-Term Grades. If instructors do not have such students, they will not need to submit Mid-Term Grades.
5. Mid-Term Grades should be issued in the grading mode for the course.
6. Satisfactory/unsatisfactory (S/U) marks may be used.
7. All Mid-Term Grades must be submitted as specified by the Office of the University Registrar.

***Refer to policy for details:*** III-6.00(B) University of Maryland Policy and Procedures Concerning Mid-Term Grades for Undergraduate

Students *(*https://policies.umd.edu/policy/f6a544e6-b703-493c-845a-edc6be5678dc/*)*

# Pass-Fail Grading

1. To register for a course under the pass-fail option, an undergraduate must have completed 30 or more credit hours of college credit with a GPA of at least 2.0. At least 15 of these credit hours must have been completed at the University of Maryland, College Park with a University of Maryland GPA of at least 2.0.
2. Courses for which this option applies must be electives in the student's program. The courses may not be college, major, field of concentration, or general education program requirements.
3. Only one course per semester may be registered for under the pass-fail option.
4. No more than 12 semester hours of credit may be taken under the pass-fail option during a student's college career.
5. Students may not choose this option when re-registering for a course.
6. When registering under the pass-fail option, a course that is passed will count as hours in the student's record but will not be computed in the grade point average. A course that is failed will appear on the student's record and will be computed both in the overall average and the semester average.
7. Students registering for a course under the pass-fail option are required to complete all regular course requirements. Their work will be evaluated by the instructor by the normal procedure for letter grades. The instructor will submit a letter grade. The grades A+, A, A-, B+, B, B-, C+, C, or C- will automatically be converted by the Office of the University Registrar to the mark of P on the student's permanent record. The grades D+, D, D-, and F will remain as given. The choice of grading option may be changed only during the schedule adjustment period for courses in which the student is currently registered.

# Repeat Course Guidelines

The following repeat course guidelines apply to ALL courses that may not be repeated for additional credit.

1. The following students are required to follow the repeat guidelines effective Fall 1990:
   a. All new freshmen who began at University of Maryland, College Park Fall 1990 and after.
   b. Transfer students from schools other than Maryland community colleges who began at University of Maryland, College Park, Fall 1990 and after. This includes transfer students from another University of Maryland institution.
2. There is a limit to the number of times a student may repeat a course. Students may have one repeat of any course in which they earned an A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F, P, S, W, NG or Audit; they cannot be registered (after the schedule adjustment period) for any given course more than twice. A student's dean's office may grant an exception allowing an additional course repeat. In this case, students must present a plan for successfully completing the course. All attempts *will* be counted toward the total limit for repeatable credits.

   ***Note:*** *Students may not choose the Pass-Fail option when re-registering for a course in which a grade of "I" has been noted.*
3. Students may repeat no more than 18 credits. Additionally, if a student withdraws from all courses during a semester, those courses are not included in this limit.
4. The grade point average will include all attempts at a given course that result in a grade of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, or F. However, to help freshmen and transfer students adjust to the University of Maryland, College Park, the following two exceptions allow for the cumulative GPA to be calculated so that only the higher grade is included:
   a. When the repeated course was taken within the student's first semester at University of Maryland, College Park, or
   b. When the repeated course was taken within the student's first 24 credit hours attempted (including transfer credits) or within the semester during which the student reached the 24th credit hour attempted. Advanced Placement Exam credits do not count toward the 24 credit count.
5. Any grade earned in prior attempts of a repeated course will appear on the student's transcript, regardless of whether the grade is dropped from, or included in, the cumulative grade point average.
6. Repeat by transfer: If a student repeats by transfer a course that was taken before or during the semester in which the student reached 24 credits attempted (including transfer credits) and the transfer grade is higher, then the original grade in the course will be excluded from the GPA calculation.
   a. If the course was taken after the semester in which the student reached 24 credits attempted, the original grade remains in the GPA calculation.

# Degree Information

## Combined Bachelor's/Master's Programs

In a combined bachelor's/master's program, some graduate level courses initially taken for undergraduate credit may also be applied towards the graduate credit requirements for a master's degree program at the University of Maryland. A bachelor's/master's program may be developed for an individual student, or it may be a structured program. Only graduate programs on the semester term are eligible for the combined degree. Each student can pursue one combined bachelor's/master's program. Students admitted to a combined bachelor's/master's program may not defer the start of their master's program, but may request a leave of absence in their first year in the master's program. Students who do not begin their master's program the term after completing their bachelor's degree will have the double-counted credits converted to being counted only for the bachelor's degree.

### Individual Student Bachelor's/Master's Program

An individual bachelor's/master's program may be developed by a current UMD undergraduate student in consultation with his/her academic advisor. Such a program is available only to students whose academic performance is exceptional. It is to be developed according to the individual career interests and goals of the student and should be an integrated learning experience rather than merely the completion of a certain number of graduate and undergraduate credits. The proposed program requires the approval of the Directors of both the undergraduate and the graduate programs involved and of the Dean for Undergraduate Studies and the Dean of the Graduate School. Normally no more than nine credits of graduate courses applied to the bachelor's degree may also be counted for graduate credit in an individual student's program. Courses to be double-counted must be at the 600-level or above and must be passed with at least a "B-" grade. Individual study courses, internships, or courses given credit by examination are not eligible. The credits to be double-counted will be designated as applicable to the graduate program after the student receives the bachelor's degree and matriculates in

the Graduate School. This designation will be canceled if the student withdraws from the graduate program before completing the master's degree.

### Structured Bachelor's/Master's Program

A structured bachelor's/master's program is an articulated curriculum combining an existing undergraduate program and an existing master's program at the University of Maryland, offered by the same or by different departments. Such a program is to be designed for students whose academic performance is exceptional and should be an integrated learning experience rather than merely the completion of a certain number of graduate and undergraduate credits. A proposal for such a program should be submitted by the college(s) housing the academic programs concerned and requires the approval of the Graduate Council, the Graduate Dean, the Senate PCC Committee, and the Provost.

Necessary features of a structured bachelor's/master's program include the following:

1. There must be specific requirements for admission to the combined program that speak to the exceptional performance of the students to be admitted. At a minimum, students accepted for the program must be clearly admissible to the graduate program portion.
2. The program should be designed so as not to unduly delay the student's receipt of their bachelor's degrees. Taking graduate credits should not unduly limit the breadth of the student's experience through premature specialization. Where appropriate, graduate courses taken while an undergraduate may substitute for courses required in the undergraduate major program.
3. Formal admission to the Graduate School will require completion of all requirements for the bachelor's degree.
4. The credits to be double-counted will be designated as applicable to the graduate program after the student receives the bachelor's degree and matriculates in the Graduate School.

A structured bachelor's/master's program may normally include up to nine credits of graduate level courses that are counted both for the bachelor's program and the master's program. More than nine double-counted credits may be allowed if both of the following conditions are satisfied:

1. The additional graduate credits applied to the undergraduate program do not unduly limit the breadth of the student's experience through premature specialization.
2. The master's program requires more than thirty credits.

## Degree Requirements

The requirements for graduation vary according to the character of work in the different colleges, schools, departments and academic units. It is the responsibility of the colleges, schools, departments and other academic units to establish and publish clearly defined degree requirements. Responsibility for knowing and meeting all degree requirements for graduation in any curriculum rests with the student. Specific degree requirements are listed in this catalog under the college and/or department as appropriate.

Each student should check with the proper academic authorities no later than the close of the junior year to ascertain his or her standing with respect to advancement toward a degree. For this purpose, each student should be sure to review their semester grades and unofficial transcript on the Testudo website (http://testudo.umd.edu) at the close of each semester or request a semester grade report.

### Completion of Interrupted Degree

Students whose registration at the University of Maryland, College Park, has lapsed for more than 10 years shall be required to complete a minimum of 15 credit hours at College Park after their return to campus in order to earn a baccalaureate degree.

Recommendations about courses needed to satisfy the remaining degree requirements will be made at the department level, with approval of the Dean's Office required. The reason for requiring these credits is that many fields change sufficiently in 10 years to require that students take current courses if they are to be awarded a current degree. Exceptions to the requirement for a minimum of 15 credits earned at College Park upon return to the campus can be recommended by the Deans for approval in the Office of the Vice President for Academic Affairs.

### Credit Requirements

No baccalaureate degree will be awarded in instances where fewer than 120 credit hours have been earned. Many undergraduate curricula at the University of Maryland, College Park, require more than 120 credits. It is the responsibility of each student to familiarize themself with the requirements of particular curricula. The student is urged to seek advice on these matters from the departments, colleges, or the Office of the Dean for Undergraduate Studies. To earn a baccalaureate from the University of Maryland, College Park, a minimum of 30 credits must be taken in residence (see below).

### Credits in Residence

1. All candidates for undergraduate degrees from the University of Maryland, College Park, must take a minimum of 15 credits in courses numbered 300 or above, including at least 12 credits in the major field.
2. All candidates for undergraduate degrees from the University of Maryland, College Park must take a minimum of 30 credits in residence. Normally these 30 credits will be the final 30 credits counted toward the degree. However, credits from university-approved study abroad and internship programs, and a maximum of 6 credits that are not part of such programs, may be included in the final 30 if approved in advance by the dean of the academic unit from which the student expects to receive the degree.

### Enrollment in Majors

A student who is eligible to remain at the University of Maryland, College Park, may transfer among curricula, colleges, or other academic units except where limitations on enrollments have been approved. By the time they complete 60 credits, students are expected to declare a degree-granting major. Students must be enrolled in the major program from which they plan to graduate, when registering for the final 15 hours of the baccalaureate program. This requirement also applies to the third year of the combined, pre-professional degree programs. Also see information on double majors and double degrees below.

### Grade Point Average

A minimum cumulative 2.0 grade point average is required for graduation in all curricula. A higher average may be required by the individual department, college, school, or program.

Students who matriculated to the university in Fall 2012 and after must have a minimum "C" (2.00) cumulative grade point average across all courses used to satisfy major degree requirements, minor requirements,

and undergraduate certificate requirements, respectively. Individual department, college, school, or program requirements may exceed this minimum.

***Refer to policy for details:*** III-7.00(A) University of Maryland, College Park Degree Requirements *(*https://policies.umd.edu/policy/57171f29-cf74-41b2-b3d2-ce392e75589c/*)*

# Minors

Minors afford students the opportunity to pursue a limited but structured concentration in a coherent field of study outside their major. The minor may be a truncated version of a major or a distinctive intellectual subset of a discipline. Minors are not offered in every field of study. Students should inquire with departments for current availability of minors or see individual listings on this site.

The structures of minors vary in detail, but, with rare exceptions, they all require no fewer than 15 and no more than 24 credits with at least 9 credits in upper division courses (300-level or above). No more than six credits (or two courses) may be applied to satisfy both the requirements of a minor and a major program. No course may be used to satisfy the requirements of more than one minor. All courses taken for a minor must be completed with a minimum grade of "C-". A minimum C (2.00) cumulative grade point average across all courses used to satisfy the minor is also required.

To ensure appropriate academic advising, students who wish to pursue a minor should inform both the college responsible for their major and the unit offering the minor as early as possible, but in no case later than one full academic year before the expected date of graduation. When a student has completed all requirements for the minor, the unit offering the minor shall notify the student's college, which verifies that the student has met all requirements and officially notifies the Office of the University Registrar. The completion of a minor is posted on the student's official transcript only when the student completes all requirements for the bachelor's degree.

In February 2004, the University Senate voted to phase out academic citations and replace them with minors. Students pursuing an academic citation should contact the respective department or program for information on this conversion process.

# Second Majors and Second Degrees

## Post-Baccalaureate Second Degree

Students who matriculate to the university with a bachelor's degree from any regionally accredited college or university will be considered to have satisfied the university's general education requirements, regardless of when the degree was received.

## Second Degrees Taken Sequentially

A student who has completed the requirements for, and has received one baccalaureate and who wishes to earn a second degree from the university must satisfactorily complete all of the prescribed requirements for the second degree and enough additional credits so that the total, including all applicable credits earned at the university or elsewhere, is at least 150 credits. At least 18 of the credits applied to one degree must be in course work not applied to the requirements of the other degree program. In no case will a second baccalaureate be awarded to a student who has not completed a minimum of 30 credits in residence at the university.

## Second Degrees Taken Simultaneously

A student who wishes to receive two bachelor's degrees simultaneously must satisfactorily complete the regularly prescribed requirements of both degree programs and a minimum of 150 credits. At least 18 of the credits applied to one degree must be in course work not applied to the requirements of the other degree program. As early as possible, but in no case later than one full academic year before the expected date of graduation, the student must file with the department or programs involved, as well as with the appropriate deans, formal programs showing the courses to be offered to meet the major, supporting area, college, and general education programs. If two colleges are involved in the double degree program, the student must designate which college will be responsible for the maintenance of records and certification of general education requirements. Final approval of a double degree program must be obtained from each of the appropriate departments and college(s).

## Second Majors

A student who wishes to complete a second major concurrently with his or her primary major of record must obtain written permission in advance from the appropriate departments or programs and colleges. As early as possible, but in no case later than one full academic year before the expected date of graduation, the student must file with the department or programs involved and with the appropriate deans, formal programs showing the courses to be offered to meet requirements in each of the majors and supporting areas as well as those of the college and general education programs. A student who wishes to add a Limited Enrollment Program as a second major must do so at the earliest possible opportunity to assure that specific credit and GPA requirements can be met. In order to obtain approval, students must complete all of the requirements specified for both the primary and secondary major. Courses taken for one major may be counted as appropriate as part of the degree requirements for the general education programs. If two colleges are involved in the double major program, the student must designate which college will be responsible for the maintenance of records and certification of general education requirements. Final approval of a double major program must be obtained from each of the appropriate departments and college(s).

# Student Academic Success and Degree Completion

The goal of the Student Academic Success-Degree Completion Policy (https://policies.umd.edu/academic-affairs/university-of-maryland-student-academic-success-degree-completion-policy/) is to promote undergraduate student success. The policy establishes a structured framework to guide all students to completion of an undergraduate degree within a reasonable period of time. Academic units provide 4-year templates that students can use to develop a program of study that will meet the course requirements for a degree. Students are responsible for developing plans of study, with the assistance of their academic advisors. Academic units monitor student progress and assist students at risk of falling behind benchmarks in their plans. The policy in essence establishes a process to provide a pathway to completion of a degree for each student, initially created and then adjusted over time as needed to meet each student's particular circumstances. The policy is described in more detail in the section on Academic Advising.

*References to the policy:* http://www.ugst.umd.edu/academicsuccess.html *and to frequently asked questions:* http://ugst.umd.edu/faqs-successpolicy.html

# Prior Learning Credit (A/S Level, AP, BMT, CLEP, Credit-by-Exam, IB)

The University of Maryland provides students with several opportunities to receive undergraduate credit for knowledge and achievements gained through prior learning/competency-based education. Students may earn up to one-half of the credits required for their baccalaureate degree through Prior Learning Credit (PLC). Usually, this is no more than 60 credits. No more than 30 of these credits can be from College Level Examination Program (CLEP).

The University of Maryland recognizes the following as PLC:

- Advanced Level/Advanced Subsidiary Level (A-Level/AS-Level)
- Advanced Placement (AP)
- Basic Military Training (BMT)
- College-Level Examination Program (CLEP)
- Departmental Proficiency Exams (Credit-by-Exam)
- International Baccalaureate (IB)

All PLC that is awarded credit by the University of Maryland, with the exception of Credit-by-Exam, is recorded as prior learning credit at the top of the student's transcript and will be included in the total number of credits earned. Credits earned through Credit-by-Exam are considered resident credit and posted under the semester in which the exam was taken. *Students will not receive credit for both passing an examination and completing an equivalent course.*

Students should inform their advisor they have received or anticipate receiving credit for AP, IB, or A-Level/AS-Level exams. This information may impact placement into courses required for their degree.

Credit for AP, IB, A-Level/AS-Level and CLEP is awarded based on the approval of the department overseeing the course content and is subject to ongoing departmental reevaluation.

Even if a student has already been awarded credit for one of these exams at another institution, the credit will be reevaluated by the University of Maryland. The score received on the exam must be equal to the minimum score the University of Maryland accepted at the time the test was taken, otherwise, the exam will not be awarded PLC. The University of Maryland must receive an official score report directly from the organization/board that administered the exam for PLC to be awarded.

Duplicate credit will not be awarded for passing an exam and completing an equivalent course. ***Credit received in a course at the University of Maryland shall supersede any credit from AP, IB, A-Level/AS-Level, or CLEP.*** A student who has earned any grade, passing or otherwise, in a course at the University of Maryland shall not subsequently receive credit for that course by AP, IB, A-Level/AS-Level, or CLEP. If a student has been awarded exam credit for an equivalent University of Maryland course in which they have also earned credit, the course from the exam will be marked on their record as being a repeated course and the credits will be removed from the total number of credits earned. *No credit will be awarded for AP, IB, or A-Level/AS-Level exams that are repeated or taken after a student has matriculated to the University of Maryland.*

Information about the Prior Learning Credit, including the acceptance and awarding of credit, along with course equivalency charts, can be found online at http://registrar.umd.edu/transfer-credit/prior-learning-credit/. The University of Maryland's polices and procedures for credit for prior learning can be found in policy III-1.41(A) University of Maryland Policy and Procedures Concerning Credit for Prior Learning (https://policies.umd.edu/academic-affairs/university-of-maryland-policy-and-procedures-concerning-credit-for-prior-learning/). The University System of Maryland Policy on Credit for Competency-Based Education and Prior Learning can be found at https://www.usmd.edu/regents/bylaws/SectionIII/. Questions regarding PLC should be directed to Transfer Credit Services (https://registrar.umd.edu/transfer-credit/).

## Advanced Level/Advanced Subsidiary Level (A-Level/AS-Level)

The University of Maryland awards credit for A-Level/AS-Level exams taken through Cambridge International Exams (CIE) or one of the other approved boards. All departments reserve the right to reevaluate the content of exams and to change the assignment of credit, minimum required score and course equivalencies. The year in which the student took the A-Level/AS-Level exam will determine how the University of Maryland awards credit. For example, if a student takes an A-Level/AS-Level exam in 2024, the credit awarded is based on the evaluation of the exam during the 2024 year. Students are not permitted to earn credit for both A-Level and AS-Level exams within the same subject areas. Official scores must be sent by CIE or the approved exam board to the University of Maryland. For additional information about A-Level/AS-Level, visit http://registrar.umd.edu/transfer-credit/prior-learning-credit/.

## Advanced Placement (AP)

The University of Maryland encourages applicants to seek AP credit so that academically successful students may move forward in their programs at an appropriate pace. However, credit is not awarded for all exams offered by College Board. Credits for AP exams are awarded based on departmental approval when the designated minimum score is earned. All departments reserve the right to reevaluate the content of exams and to change the assignment of credit, minimum required score and course equivalencies. The year in which the student took the AP exam will determine how the University of Maryland awards credit. For example, if a student takes an AP exam in 2024, the credit awarded is based on the evaluation of the exam during the 2024 year. Students need to have their scores sent directly to the University of Maryland from College Board; the University's code is 5814.

## Basic Military Training (BMT)

Students who are currently on active duty or former service members in the United States Armed Forces are eligible to be awarded six lower-level general elective credits. The credits are awarded for the completion of basic physical fitness and basic military science as part of basic military training for the United States Armed Forces.

To qualify, students must have been enrolled as an undergraduate student in the Fall 2013 semester or later, along with one of the following:

- Currently serving as an active duty member in the United States Armed Forces.

- Currently serving as a member of a reserve or National Guard branch of the United States Armed Forces.
- Has been Honorably Discharged from service in the United States Armed Forces.
- Has been Honorably Discharged from a reserve or National Guard branch of the United States Armed Forces.

## College-Level Examination Program (CLEP)

CLEP recognizes college-level competence achieved outside the college classroom. Two types of CLEP tests are available:

- General Examinations - cover the content of a broad field of study
- Subject Examinations - cover the specific content of a college course
- Credit is not awarded for all CLEP General and Subject Examinations. CLEP credits are awarded when satisfactory scores are attained. All departments reserve the right to reevaluate the content of exams, and to change the assignment of credit, minimum required score and course equivalencies. The year in which the student took the CLEP exam will determine how the University of Maryland awards credit. For example, if a student takes a CLEP exam in 2024, the credit awarded is based on the evaluation of the exam during the 2024 year. **Current University of Maryland students must obtain permission from their advising college prior to taking a CLEP exam.** This ensures the CLEP credits are acceptable and will apply toward the student's degree requirements. CLEP exams are administered by the College Board. Students who want to earn credit through CLEP must request their official score reports to be sent to the University of Maryland. The Score Recipient Code is 5814.

## Departmental Proficiency Examination (Credit-by-Exam)

At the University of Maryland, Credit-by-Exam is comparable to a comprehensive final examination in a course. Although the mathematics department receives the most applications for Credit-by-Exam, other departments may provide opportunities to earn credit for certain courses. Initial inquiry as to whether an examination in a specific course is available should be directed to the academic department which offers the course in question.

Credit-by-Exam may not be taken for courses in which the student has remained registered at the University of Maryland, beyond the Schedule Adjustment Period even with a transcript notation of W.

In order to be considered for Credit-by-Exam, a student must meet the following eligibility criteria:

1. A minimum of 12 (twelve) credit hours completed at the University of Maryland;
2. A minimum grade point average of 2.0;
3. Completion of all prerequisite courses or the approval of the department chairperson (or, in non-departmentalized units, the dean) and the Senior Vice President and Provost.

Note: Requirements 1. and 2. may be waived for students in their first semester at the University of Maryland by the department chairperson and the dean.

The following applies to the grading associated with Credit-by-Exam:

1. A student may cancel the application for credit-by-exam at any time prior to the completion of the examination with no entry on the permanent record.
2. The examination instructor shall make the grade available to the student prior to the formal submission of the grade.
3. A grade of "C-" or better must be obtained to establish credit-by-exam.
4. If a student elects not to have the grade posted, a grade of "W" shall be recorded. No course may be attempted more than once using credit-by-exam.
5. Grades earned using credit-by-exam shall be posted on the transcript as resident credit in the semester the examination was taken and used in computing semester and cumulative grade point averages. Such grades shall be accompanied by the notation "By examination" as applicable.

Credit-by-exam will not be accepted for any part of the final 30 (thirty) semester hours without permission of the Senior Vice President and Provost. With such permission, 6 (six) of the final 30 (thirty) credit hours may be by credit-by-exam. Applications for examinations shall be approved on an individual course basis. The instructor must certify on the report of examination that copies of the examination questions and the student's answers shall be retained in accordance with the University of Maryland's Records and Retention and Disposal Schedule.

If an examination for a course is available, the department will provide information regarding when and where the exam is administered, type of examination, and material which might be helpful in preparing for the examination. Students can apply for a Math CBE by contacting the department (math-ugadvisor@umd.edu). Additional information may be found on their website: https://www-math.umd.edu/credit-by-exam.html.

## International Baccalaureate (IB)

The year in which the student took the IB exam will determine how the University of Maryland awards credit. For example, if a student takes an IB exam in 2024, the credit awarded is based on the evaluation of the exam during the 2024 year. Credit is not awarded for all exams offered by IB and is based on departmental approval. All departments reserve the right to reevaluate the content of exams, and to change the assignment of credit, minimum required score and course equivalencies. Students should have their scores sent directly to the University of Maryland from the International Baccalaureate Results Service. The university's code is 001417.

## Other Non-Traditional Experience

There are some instances of prior learning/competency-based education for which the University of Maryland generally does not award credit. These include, but are not limited to: American Council on Education (ACE), Defense Activity for Non-Traditional Education Support (DANTES), Program on Non-Collegiate Sponsored Instruction (PONSI), StraighterLine, Sophia Learning, Coursera, Outlier, study.com, departmental credit-by-exam from institutions other than Maryland public institutions of higher education, and/or life experiences.

# Appeals

Students may contact the Office of the University Registrar to appeal the acceptance of prior learning experiences. For prior learning credit to be awarded during an appeal, the student must provide evidence that the prior learning experience falls within the level, scope, content and expected learning outcomes of courses offered at the University of Maryland. The determination of the Office of the University Registrar shall be final.

# Registration

## Classification of Students

Official classifications of undergraduate students are based on cumulative credits as follows:

- freshman, 0-29 credit hours;
- sophomore, 30-59 credit hours;
- junior, 60-89 credit hours; and
- senior, 90 or more credit hours.

***Refer to policy for details: III-6.40(A) University of Maryland, College Park Policy on Classification of Undergraduate Students***

## Courses Taken Through Consortium Agreements

Eligible students may enroll in courses at other universities via the Consortium of Universities of the Washington Metropolitan Area or the University System of Maryland's Inter-Institutional Registration Program. Courses taken at another institution may not be credited toward a degree program without prior approval of the dean of the college from which the student expects to earn a degree.

### Consortium of Universities of the Washington Metropolitan Area

Currently registered, degree seeking University of Maryland, College Park students have the opportunity to take courses at member institutions through the Consortium of Universities of the Washington Metropolitan Area's Cross-Registration (https://consortium.org/programs-and-initiatives/academic-collaborations/cross-registration/) program.

Participating institutions of the Consortium of Universities of the Washington Metropolitan Area (D.C. Consortium) are:

- American University
- The Catholic University of America
- Gallaudet University
- The George Washington University
- George Mason University
- Georgetown University
- Howard University
- Marymount University
- National Defense University
- National Intelligence University
- Trinity Washington University
- Uniformed Services University of the Health Sciences
- University of the District of Columbia

Students enrolled in degree seeking programs at these institutions are able to attend certain classes at the other campuses and have the credit considered as resident credit at their home institutions. The intention is to allow students to take an occasional course to augment a program rather than to develop an individual program. Payment of tuition for courses will be made to the student's home campus, but special fees may be assessed by the host institution. Comparable courses offered at University of Maryland may not be taken through the consortium.

Currently registered, degree seeking University of Maryland students with at least junior standing may participate in the consortium program according to the stipulations listed in the current edition of the Registration Guide. Enrollment in courses is available only on a space-available basis. Visiting students are expected to meet prerequisites or other criteria set by the host institution and comply with the host institution's registration procedures and deadlines.

Golden ID students are not eligible to enroll in courses through the consortium with waiver of fees. University of Maryland students may only enroll in courses offered on the campus of the host institution.

Students should review the Office of the University Registrar website if interested in additional information about this consortium program (https://registrar.umd.edu/registration/special-populations/dc-consortium/) or contact the consortium coordinator by email at dcconsortium@umd.edu or in-person on the first floor of the Clarence M. Mitchell, Jr. Building.

### University System of Maryland Inter-Institutional Registration Program

Currently registered, degree seeking University of Maryland, College Park students have the opportunity to take courses at certain University System of Maryland institutions to augment their degree program at University of Maryland under the Inter-Institutional Registration Program. The provisions for such are contained in the Board of Regents Policy on Student Concurrent Inter-Institutional Registration (BOR III 2.40;III 2.41) found at https://www.usmd.edu/regents/bylaws/SectionIII/. Participating institutions include:

- Bowie State University
- Coppin State University
- Frostburg State University
- Salisbury University
- Towson University
- University of Baltimore
- University of Maryland, Baltimore
- University of Maryland, Baltimore County
- University of Maryland, College Park
- University of Maryland, Eastern Shore.
- University of Maryland, Global Campus*

**University of Maryland College Park undergraduates may not enroll in courses at the University of Maryland Global Campus through this program.*

Currently registered, degree seeking University of Maryland students with at least sophomore standing may enroll in courses for credit, and have that credit considered as resident credit at their home institution. Enrollment in courses is available only on a space-available basis and visiting students are expected to meet prerequisites or other criteria set by the host institution. Payment of tuition for courses will be made to the

student's home campus, however special fees may be assessed by the host institution.

Students should review the Office of the University Registrar website if interested in additional information about the Inter-Institutional Registration program (https://registrar.umd.edu/registration/special-populations/usm-inter-institutional/) or contact the inter-institutional coordinator by email at interinstitutional@umd.edu or in-person on the first floor of the Clarence M. Mitchell, Jr. Building.

Inter-Institutional Registration is only applicable for the fall and spring semesters.

# Credit Hours and Maximum Semester Credits

A credit hour is a standard metric used to indicate the amount of instructional time regardless of modality. The University of Maryland follows the Maryland Higher Education Commission (MHEC) policy on "contact hours" to ensure each course meets the minimum required instructional time based on the type of course and the credit hours awarded.

Undergraduates may not exceed the following maximum credit loads without the prior approval of their Advising College:

- Fall and Spring: 20 credits (16 credits before the First Day of Classes)
- Summer Session I, I-A, I-B: 8 credits
- Summer Session II, II-C, II-D: 8 credits
- Winter Session: 4 credits

# Registering for Classes

Office of the University Registrar
Clarence M. Mitchell, Jr. Building
Phone: 301-314-8240
http://registrar.umd.edu

To attend classes at the University of Maryland, students are required to process an official registration. Specific registration dates and instructions are available at http://registrar.umd.edu/registration/.

## Registration Agreement

When you register, the university reserves specific class space for you and commits resources to provide the instruction you have selected. On your part, you assume responsibility for paying tuition and fees or for notifying the university if you decide not to attend. The availability of the courses listed in Testudo (http://testudo.umd.edu/) and the Schedule of Classes (https://app.testudo.umd.edu/soc/) is subject to change. A section may be cancelled due to low enrollment or departmental staffing considerations. When a class is cancelled, the department or the Office of the University Registrar will notify registered students and help them make alternate arrangements, if necessary. Registered students are encouraged to verify their class meeting time and location on Testudo (http://testudo.umd.edu/) on the First Day of Classes for the most up-to-date information.

All students who register incur a financial obligation to the university. Please note that while the university reserves the right to limit or cancel enrollment for students who owe a debt to the university, your registration may not be automatically cancelled for non-payment of tuition and fees. It is the student's responsibility to avoid charges by cancelling their registration before the First Day of Classes each semester. By cancelling your registration before the start of classes, you will avoid any charges and your class spaces will be released in time to become available to other students.

## Registration Process

**New Degree Seeking students** must attend a student orientation program with the Office of Student Orientation and Transition (https://academiccatalog.umd.edu/undergraduate/campus-administration-resources-student-services/academic-resources-services/orientation/). Advising and course registration are part of the orientation process. All newly admitted students must meet with an advisor before registration and are required to provide proof of immunization according to the university's policy.

***Refer to policy for details:*** V-1.00(H) University of Maryland, College Park Immunization Policy ***(***https://policies.umd.edu/student-affairs/university-of-maryland-college-park-immunization-policy/***)***

**Current undergraduate students** receive a notification email that includes information about early registration, a link to check their registration time, and any registration blocks. Registration appointments for the fall semester begin in late March and appointments for the spring semester begin in late October. Registration can be processed on Testudo (http://testudo.umd.edu) or in-person. Provided students resolve any registration blocks, students can register at, or any time after, their assigned registration appointment date and time. Open registration follows early registration and continues up to the First Day of Classes. During this time, students may process an initial registration or make changes to their schedule by adding and dropping classes. The Schedule Adjustment Period begins on the First Day of Classes. All registration transactions, either online or in-person, are final unless a student processes a cancellation of registration.

Registration information for Summer Session, Winter Session, Freshmen Connection, and Professional Programs may be found at http://exst.umd.edu.

# Registration Cancellation

Students who register and later decide not to attend the university must submit a Cancellation of Registration Form (http://registrar.umd.edu/registration/separating-university/cancel-registration/) to the Office of the University Registrar before the First Day of Classes. Failure to cancel registration will result in a financial obligation to the University of Maryland even if a student does not attend class.

# Schedule Adjustment and Drop Period

## About the Schedule Adjustment Period

The Schedule Adjustment Period is a designated period of time at the beginning of each term when students can add or drop courses and change the grading method for a course. Courses added will appear on the student's permanent record. Courses dropped during this period will not appear on the student's permanent record. The Schedule Adjustment Period is the first 10 days of classes for the fall and spring semesters, four days for 6-week Summer Sessions I and II, and one day for 3-week Winter and Summer sessions. Students are responsible for checking the dates and deadlines for each term (https://registrar.umd.edu/calendars/).

See Penalties for Drops During Schedule Adjustment (https://registrar.umd.edu/registration/register-classes/add-drop-classes/) (Refund Schedule) for information and penalties associated with dropping and added courses.

Complete information on Schedule Adjustment Period and Drop Period for Summer Session, Winter Session, Freshmen Connection, and Professional Programs may be found at http://exst.umd.edu.

### After Schedule Adjustment Period

Courses may not be added without an exception to policy from the student's academic advising college.

All courses for which the student is enrolled shall remain as a part of the student's permanent record. The student's status shall be considered full-time if the number of credit hours enrolled at this time is 12 or more.

### Drop Period

The Drop Period is a designated period of time after the end of the Schedule Adjustment Period. For undergraduate students, drops during this period will be recorded on the student's permanent record with a mark of W and will not be used in the computation of a student's cumulative grade point average. During this period an undergraduate student may drop a maximum of four credits. However, if the course carries more than four credits, the student may drop the entire course, or in the case of a variable credit course, reduce the credit level by up to four credits. A course dropped with a W will count as an attempt at a course for the undergraduate course repeat guidelines (https://registrar.umd.edu/grades-records/grades/course-repeats/).

Students are responsible for checking the dates and deadlines for each term (https://registrar.umd.edu/calendars/).

## Undergraduate Credit for Graduate Level Courses

Subject to requirements determined by the graduate faculty of the department or program offering the course, undergraduate degree-seeking students may register for graduate-level courses, i.e., those numbered from 600 to 897, with the exception of 799, for undergraduate credit. The student must obtain the prior approval of the department and instructor offering the course.

Enrollment in a graduate-level course does not in any way imply subsequent departmental or Graduate School approval for admission into a graduate program, nor may the course be used as credit for a graduate degree at the University of Maryland.

The course may not be used as credit for a graduate degree at the University of Maryland except as part of an approved Bachelor's/Master's program into which the student has been admitted. Courses in 12-week programs are not open to undergraduate students.

## Graduate Credit for Undergraduates

An undergraduate degree-seeking student at the University of Maryland may register for graduate-level courses with the approval of the Dean of his or her academic college, the chair of the department, the instructor offering the course, and the Dean of the Graduate School. These courses will be recorded as "for graduate credit only" and may ONLY be applied toward an advanced degree at this university or elsewhere. Students eligible for this option must have achieved Junior standing, will have a GPA of at least 3.0, and will have successfully completed the prerequisite courses with a grade of "B-" or better.

The student must submit a plan of study showing that taking graduate courses will not unduly delay completion of the requirements for the bachelor's degree. The total of graduate and undergraduate credits attempted in any semester may not be more than 18. The graduate credits so earned will not count toward any requirements for the bachelor's degree. An undergraduate student may take a maximum of nine graduate credits when taken as graduate credits only. Programs can petition the Dean of the Graduate School to request up to 12 graduate credits for undergraduates, such as for combined bachelor's-master's programs. Courses in a 12-week term program are not open to undergraduate students. In order to earn a graduate degree or certificate, students must be admitted into the Graduate School. Please see the combined bachelor's-master's policy for credit limits that pertain to those programs.

## Veterans Benefits

Students attending the university under the Veterans Education Assistance Act (Title 38, U.S. Code) may receive assistance and enrollment certification at the Office of the University Registrar, Veteran Certification Services (https://www.registrar.umd.edu/veterans-benefits/), 1113 Clarence M. Mitchell, Jr. Building. Students are responsible for understanding their eligibility for benefits and should consult http://va.gov/education/eligibility/ or the School Certifying Official (SCO) at Veteran Certification Services for additional information.

Any students using VA benefits should request certification to the VA by submitting UMD's VA Enrollment Certification Request Form to the SCO as soon as they register for any term they are using the benefits. Students using benefits at the University should also provide a Certificate of Eligibility (COE) to the SCO within their first term of enrollment.

### GI Bill® Delayed Payment Policy

GI Bill® is a registered trademark of the U.S. Department of Veterans Affairs (VA). More information about education benefits offered by VA is available at the official U.S. government Web site at http://benefits.va.gov/gibill/.

Any student using Chapter 31 or Chapter 33 Post 9/11 GI Bill benefits, who has provided a written request to be certified for a term, will not be assessed late fees or financial penalties for the portion of the account that is covered by VA. Any delay in disbursement of VA funds will not impact a student's ability to enroll or have access to school resources that are available to other students who have already paid. Covered students will not be required to secure additional funding for the portion of the student account that is covered by their VA benefits.

*Students may be assessed late fees and financial penalties for any portion of the account that is not covered by VA benefits.*

### Priority Registration

Eligible service members of the United States Armed Forces are entitled to priority registration at the University of Maryland as per the 2018 State of Maryland HB1074. An eligible service member is:

1. a currently serving member of any branch of the Armed Forces of the United States, including the National Guard and the Military Reserves, or

2. a veteran of any branch of the Armed Forces of the United States, including the National Guard and the Military Reserves, who has received an honorable discharge, or a certificate of satisfactory completion of military service.

To be granted priority registration, qualifying students need to submit proof of eligibility (i.e. military ID card, DD-214, or certificate of satisfactory completion of military service) to:

University of Maryland
Office of the University Registrar
Veterans Certification Services
1113 Clarence M. Mitchell, Jr. Building
College Park, MD 20742

# Withdrawal from the University

Students admitted to the University of Maryland are expected to make regular and consistent progress towards the completion of their degree. However, the university understands that in exceptional circumstances a student may find it necessary to completely withdraw from all classes. The university considers such an interruption to be very serious as it delays normal progress towards the degree. Students should not withdraw for frivolous reasons or to avoid the consequences of ignoring their academic responsibilities. Any student considering withdrawal is strongly encouraged to meet with his or her academic college advisor before leaving the university.

## Potential Implications

Withdrawing from the university may have serious implications for international students, students receiving financial aid or students residing in on-campus housing. Students are advised to contact the appropriate offices before finalizing withdrawal plans for withdrawing from the university.

- Office of Student Financial Aid (http://financialaid.umd.edu), 0115 Clarence M. Mitchell, Jr. Building, 301-314- TERP (8377)
- Department of Resident Life (http://reslife.umd.edu), 2100 Annapolis Hall, 301-314-2100
- International Student & Scholar Services (http://globalmaryland.umd.edu/offices/international-students-scholar-services/), 1126 H.J. Patterson Hall, 301-314-7740
- Student Financial Services & Cashiering (http://billpay.umd.edu), 1135 Lee Building, 301-314-9000

## Withdrawal

A withdrawal is available anytime between the first and last day of classes. Students must submit the Withdrawal Form to the Office of the University Registrar no later than the last day of classes:

- Undergraduate Student Withdrawal (http://registrar.umd.edu/registration/separating-university/withdraw/#undergraduate)
- Graduate Student Withdrawal (http://registrar.umd.edu/registration/separating-university/withdraw/#graduate)

In exceptional cases, a retroactive withdrawal (https://registrar.umd.edu/registration/separating-university/appeal/) may be granted based on documented requests in which extenuating circumstances significantly impaired the student's ability to complete the semester and officially withdraw by the established semester deadlines. Such circumstances include, but are not limited to, medical or psychological causes.

A student's return to the university is contingent upon the conditions outlined in *Return to the University* below.

## Return to the University

Normally, a student may withdraw from the university only once during matriculation as an undergraduate. Students who find it necessary to leave the university during the semester are required to apply for reenrollment in order to return. For those students who have earned a minimum 2.0 cumulative GPA, with no previous withdrawal, and intend to return the following Spring or Fall semester, the Office of the Registrar will facilitate their reenrollment at the time of withdrawal. Students who withdraw while on academic probation, have previously withdrawn from a fall or spring semester, or are in their first semester of attendance are required to apply for reenrollment and their application will be reviewed by the Faculty Petition Board.

For additional information on returning to the university, please see the Student Success Office website (http://studentsuccess.umd.edu).

## Additional Withdrawal Information

- The effective date of withdrawal for the purposes of refunds is the date that the notice is received by the Office of the University Registrar.
- Notation of withdrawal and the effective date will be posted to the student's academic record.
- Courses taken during the academic semester from which the student is officially withdrawn are not counted as attempts under the repeat course guidelines.
- Instructors and college offices will be notified of all withdrawn students.
- The deadline for submitting a request for a withdrawal is the last day of classes.

## Military Call-ups

It is the intent of the University of Maryland, College Park, to facilitate the withdrawal or change in registration and the re-enrollment of students who are called to active military duty during the semester. The student should submit a request for withdrawal or change in registration along with a copy of the military orders to the Office of the University Registrar. Withdrawal for active military service will have no effect on any subsequent request to withdraw from the university. The provisions for such are contained in the Board of Regents Policy on Students who are called to Active Military Duty During a National or International Crisis or Conflict (V-7.00) (https://www.usmd.edu/regents/bylaws/SectionV/V700.html). Detailed information about this process may be obtained from the Office of the University Registrar.

# Suspension or Expulsion of Students

If a student is found responsible for committing serious violations that risk the health and safety of themselves or others, or for demonstrating a significant lack of commitment to the principles of truth and academic honesty of the University, then the University reserves the right to dismiss (suspend or expel) a student in accordance with the a Code of Academic Integrity (https://policies.umd.edu/academic-affairs/university-of-maryland-code-of-academic-integrity/) and Code of Student Conduct (https://policies.umd.edu/student-affairs/university-of-maryland-code-of-student-conduct/).

# Student Information

## Change of Address

Students are expected to notify the Office of the University Registrar of any change in their local or permanent address. Change of address can be completed online at http://app.testudo.umd.edu/main/profile/ or forms are available at the following places:

- Student Financial Services and Cashiering, Room 1135, Lee Building
- Office of the University Registrar, Front Counter Services, Clarence M. Mitchell, Jr. Building

Please be advised that changing your permanent address could affect your residency status for tuition and billing purposes. For further information about these potential implications, please contact Residency Reclassification Services at resclass@umd.edu.

## Email for Official Communication

The University of Maryland has adopted email as the primary means for sending official communications to students. Academic advisors, faculty, and campus administrative offices use email to convey important information and time-sensitive notices. All enrolled students are provided a university email address and email must be checked on a regular basis. Failure to check email will not excuse a student from missing announcements or deadlines.

For undergraduate students, the university provides the TERPmail system for academic and personal use. UMD students keep their TERPmail accounts after graduating from the university. For more information about TERPmail visit http://terpmail.umd.edu.

For graduate students, the university automatically provides UMD Gmail faculty/ staff accounts because so many serve as teaching, research, and administrative assistants, and the IT standard on institutional email requires that university business be conducted via UMD Gmail. Because UMD students may keep their TERPmail accounts after graduating from the university, TERPmail accounts are also provided for graduate students.

## Identification Cards

The photo ID card is issued at the time the student first registers for classes. This card is to be used for the entire duration of enrollment. Knowledge of your UID number is required to obtain a UMD ID card. A valid photo ID (i.e., State Driver's License, Passport, etc.) must be presented at the Office of the University Registrar Front Counter Services. Students who are not currently registered may not receive a UMD identification card. The photo ID card can be used by students for admission to most athletic, social, and cultural events, to withdraw books from the libraries, and as a general form of identification on campus.

There is a $20 charge for a replacement ID card in cases where the card is lost, stolen, has intentional damage (e.g., holes punched in the card, snapped in two, etc.), or the cardholder wishes to retake their photo. The replacement fee is waived in cases where the replacement is due to normal wear and tear (i.e., the bar code is no longer visible or the magnetic strip is non-functioning). A replacement ID card can be obtained from the Office of the University Registrar, First Floor, Clarence M. Mitchell, Jr. Building, Monday - Friday, 8 a.m. - 5 p.m.

It is the responsibility of the cardholder to keep their ID card safe and secure and to deactivate a lost or stolen ID card. You should immediately deactivate your ID card (http://idcard.umd.edu/lost/user/) to prevent use by unauthorized individuals. The university assumes no responsibility for misuse of your card, or for charges to your accounts due to your ID card being lost or stolen.

Once deactivated, you must obtain a new ID card at the Office of the University Registrar, First Floor, Clarence M. Mitchell, Jr. Building, Monday - Friday, 8 a.m. - 5 p.m. The charge for a new ID card is $20. A deactivated ID card cannot be reactivated.

***For additional information go to:*** http://registrar.umd.edu/grades-records/student-information/university-id-cards/.

## Student ID Numbers

University of Maryland assigns all students a unique nine-digit university identification number (UID). The UID is the student identifier for most university transactions. Use of the social security number is limited to necessary business transactions or where it is required by law.

***Refer to policy for details: Policy Number: VI-26.00(A) University of Maryland Policy on the Collection, Use and Protection of ID Numbers***

# Transfer Credit

## Acceptability of Undergraduate Transfer Credits

Generally, college-level courses completed at regionally-accredited institutions will be acceptable and awarded transfer credit, provided the course is similar in **level, scope, content and expected learning outcomes** to courses offered at the University of Maryland and a grade of "C-" or higher is earned. Regional accrediting bodies include:

- Higher Learning Commission;
- Middle States Commission on Higher Education;
- New England Commission on Higher Education;
- Northwest Commission on Colleges and Universities;
- Southern Association of Colleges and Schools, Commission on Colleges;
- WASC Senior College and University Commission; and
- Western Association of Schools and Colleges, Accrediting Commission for Community and Junior Colleges.

The University of Maryland typically does not award undergraduate transfer credit for courses that are pre-collegiate, remedial, vocational, technical, graduate, professional (e.g., law, medicine, dentistry, nursing), or religious in nature. For a transfer course to receive credit, the course must be similar in level, scope, content and expected learning outcomes of courses offered at the University of Maryland. Other types of transfer courses that usually are not awarded transfer credits are independent study, internship, externship, practicum, or co-op work experiences that are not supervised by University of Maryland faculty. In addition, transfer credit is typically not awarded for these types of experiences completed through other institutions.

The Office of the University Registrar at the University of Maryland posts all undergraduate transfer courses to an undergraduate degree seeking student's academic record from regionally-accredited institutions of higher education in the United States and international institutions recognized by their country's Ministry of Education. Only transfer courses that are acceptable and awarded credit by the University of Maryland will be noted on the student's official transcript. The notation will include the

course title and number of credits awarded; the grade for a course is not included. Grades from transfer courses are not included in the University of Maryland grade point average calculation.

Transfer courses from non-regionally accredited institutions in the United States will be reviewed for acceptability on an individual basis at the request of the student. Only transfer courses that have been determined to be acceptable for transfer to the University of Maryland will be posted to the student's academic record. For a course to be deemed acceptable for transfer, the course must be similar in level, scope, content and expected learning outcomes to courses offered at the University of Maryland. Transfer courses from international institutions that are not recognized by the country's Ministry of Education are not accepted for transfer and will not be awarded credit by the University of Maryland.

Transfer courses completed at public institutions of higher education in the State of Maryland, in accordance to COMAR (Code of Maryland Regulations) policy 13B.06.01.05 (https://dsd.maryland.gov/Pages/COMARHome.aspx), are acceptable for transfer with a grade of "D-" (as of Fall 2012) or higher, unless otherwise noted. The transfer course must be similar in level, scope, content and expected learning outcomes to courses offered at the University of Maryland. *It is important to note that, per University of Maryland academic policies, the minimum grade required to satisfy a degree requirement may be higher than the minimum grade required to be awarded transfer credit.*

# Applicability of Transfer Courses to Degree Requirements

Once a course has been approved as acceptable for transfer to the University of Maryland, the advising college in which the student is enrolled determines which transfer courses are applicable to the student's degree program. In cases when a student has multiple majors/minors in more than one advising college, the primary advising college is responsible for determining the applicability of transfer courses in collaboration with the secondary advising college. A transfer course must first be evaluated as being acceptable for transfer to the University of Maryland before the course can be applied toward satisfying any degree requirements. For additional information, see Transfer Course Evaluation Process (http://registrar.umd.edu/transfer-credit/transfer-course-evaluation-process/).

Each advising college is expected to make note of the required semester hours for the degree the student is pursuing. Students should be aware that changing their major could impact the number of transfer credits that may be applied to their degree requirements. If a student changes the degree they are pursuing, the advising college will need to reevaluate the applicability of the transfer credits and adjust accordingly to ensure the most appropriate transfer courses are being applied toward the degree requirements.

The University of Maryland requires that a ***minimum of 120 semester hours*** be earned to award a baccalaureate degree. In general, the maximum number of transfer credits applicable toward degree requirements at the University of Maryland is as follows:

- Effective Fall 2022, for newly matriculated students, no more than 70 credits of general education, elective, and major courses that a student earns at any 2-year institution toward a degree at the 2-year institution shall be transferable to UMD for credit toward a bachelor's degree.
- No more than 90 transfer credits may be applied toward UMD degree requirements from
  - A 4-year institution or any combination of 4-year institutions and/or prior learning credits.
  - A combination of 2-year institutions, 4-year institutions, and prior learning credits.

Regardless of the total number of semester hours required for a degree program, all candidates for undergraduate degrees from the University of Maryland must complete a minimum of 30 credits in residence at UMD.

As per the UMD Latin Honors policy (p. 73), to be eligible for Latin Honors, at least 60 semester hours must be earned in residence at the university or at a program in which credit earned is counted as UMD resident credit.

# Fundamental Studies Academic Writing Minimum Grade Requirement of C- or Higher Starting Fall 2017

In accordance with the Code of Maryland Regulations (COMAR 13B.06.01.03), students who enroll in Fundamental Studies Academic Writing (FSAW) must earn a grade of C- or higher. Students who have completed FSAW with a grade of D- or higher prior to Fall 2017 at a Maryland public institution will have met the Academic Writing General Education requirement.

# Permission to Enroll at Another Institution

## Obtaining Permission to Enroll at Another Institution (Transfer Credit)

Undergraduate students already enrolled at the University of Maryland must obtain permission **prior** to taking courses at another institution using the following forms:

- *Permission to Enroll at Another Institution* (PTE) form must be submitted to, and approved by, the advising college prior to enrolling at another U.S. institution. The PTE form is available online (http://registrar.umd.edu/transfer-credit/permission-enroll/) or through the student's advising college.
- *Study Abroad Course Approval (SACA)* form must be submitted to, and approved by, the advising college prior to enrolling at an international institution. This form is available through the Education Abroad office (http://globalmaryland.umd.edu/offices/education-abroad/).

All transfer courses taken away from the University of Maryland must be evaluated for acceptability to the University **prior** to the PTE or SACA form being submitted for approval. See Transfer Course Evaluation Process (http://registrar.umd.edu/transfer-credit/transfer-course-evaluation-process/) for instructions on how to request a transfer course be evaluated for acceptability.

This permission is required for courses taken away from the University of Maryland in all semesters, summer and winter terms. Failure to obtain permission prior to enrolling in course(s) away from the University of Maryland may result in the course not being accepted for transfer by the University and/or applied to the student's degree requirements.

Upon completion of the course(s), the student must request an official transcript be sent from the institution they attended to the University

of Maryland. Electronic transcripts can be submitted to registrar-help@umd.edu.

The student and advisor will work together to decide how the transfer course(s) are applicable to the student's degree program. The title of the course, term in which the course was taken and the number of transfer credits awarded will be noted on the student's official UMD transcript, but the grade earned will not be displayed. Grades from transferred courses are not included in the University of Maryland grade point average calculation.

Questions regarding the applicability of courses taken at another institution should be directed to the student's advising college.

### Courses Taken at Other University of Maryland Institutions

For students who began their attendance at the University of Maryland in Fall 1989 or later, all course work taken at any University System of Maryland institution will be posted as transfer credit. For all students who attended the University of Maryland prior to Fall 1989, courses taken at another University System of Maryland institution (UMBC, UMB, UMES, UMUC) prior to Fall 1989 will be included in the cumulative GPA. Courses taken at any other institution may not be credited toward a degree without advance approval.

For information about Consortium or Inter-Institutional Programs, please see Registration Policies (p. 80).

## Prior Learning Credit

Please refer to the Prior Learning Credit (p. 78) section of this catalog for information on credit via A-Levels/AS-Levels, AP exams, Basic Military Training, CLEP, Credit-by-Exam, or IB.

## Transfer Course Level

At the University of Maryland, lower-level courses refer to freshman and sophomore level courses (100 or 200) and upper-level courses refer to junior and senior level courses (300 or 400). *It is important to note that* ***not*** *all institutions use the same course numbering system as the University of Maryland to identify lower-level and upper-level courses. Additional research may be needed to make an appropriate determination of course level.*

Generally, courses are transferred to the University of Maryland at the equivalent level in which the course was taken at the transfer institution.

- a lower-level course transfers to UMD as a lower-level course
- an upper-level course transfers to UMD as an upper-level course
- a lower-level course can equate to an upper-level course at UMD, but the course is still considered lower-level
- an upper-level course can equate to a lower-level course at UMD, but the course is still considered upper-level
- **all** courses from a community college are considered lower-level

**Students should work with their major and/or advising college to determine how these courses may apply toward satisfying degree requirements at the University of Maryland.**

## Transfer Course Preliminary Evaluation

Admitted students can obtain access to their preliminary transfer credit evaluation of domestic transfer courses starting approximately two weeks after the receipt of their admission letter, once official transcripts have been received/posted. The preliminary evaluation can be reviewed via the University of Maryland unofficial transcript (http://testudo.umd.edu). For courses that have not previously been evaluated, or state **NS (Needs Syllabus)** , **NE (Needs Evaluation)** or **N1 /N2 (approved elective, needs further evaluation)** on the student's unofficial transcript, the student needs to request a course evaluation through the Transfer Course Evaluation Process (https://registrar.umd.edu/transfer-credit/transfer-course-evaluation-process/). The student must provide a detailed syllabus to request a transfer course evaluation. Occasionally, additional information about a course may be required by the departmental evaluator to complete the evaluation. The evaluation of transfer credit is an ongoing process that may continue through the student's first semester at the University of Maryland or as updated transcripts for the student are received.

Students are responsible for submitting all official final transcripts detailing their entire academic record prior to matriculation to the University of Maryland. Credit will post to a student's University of Maryland record only from official transcripts received from the institution at which the credits were earned.

An academic advisor in the student's advising college will review and determine the applicability of the already evaluated courses during orientation. It is important for admitted students to continually monitor their unofficial transcript for updates and to consult with their advisor when updates occur. ***Note: a transfer course CANNOT be applied toward satisfying a degree requirement until the course has been deemed acceptable for transfer by the University of Maryland.***

## Transfer Credit Conversion to Semester System

The University of Maryland operates on a semester calendar system. Transfer courses taken at institutions on quarter, unit or other types of calendar systems will be converted to semester credit hours. For transfer courses taken on a quarter calendar system, the University awards .67 semester credits per quarter credit hour of study. For transfer courses taken on a unit or other type of credit system, the University bases the number of semester credit hours on the number of units required to earn a degree from the institution. It is important to note the University of Maryland does not round transfer credits up or down to the nearest whole number.

## Transfer Credit Services

Transfer Credit Services (TCS) is a division of the Office of the University Registrar at the University of Maryland. TCS oversees course subject matter to determine the acceptability and awarding of transfer credit for the University, and consults with the academic departments for course clarifications and guidance. This review is based on a comparison of the transfer course to courses offered for undergraduate degree programs at the University of Maryland.

A course that is accepted for transfer to the University of Maryland will receive one of the following types of evaluations:

- direct equivalency to a University of Maryland course,
- no direct equivalency, but satisfies a general education requirement, or
- no direct equivalency, but is accepted as a general elective.

TCS provides information and assistance to academic advisors as they work with undergraduate student transfer issues. Students and advisors work together to decide how courses satisfy a student's degree requirements, while TCS provides information to the campus community on transfer credit and prior learning credit policies, course evaluations, credit reports and articulation through an online course equivalency database (https://registrar.umd.edu/transfer-credit/transfer-course-database/).

For additional information, visit Transfer Credit Services (https://registrar.umd.edu/transfer-credit/).

## Transfer of General Education Requirements from Maryland Public Institutions

As directed by the MHEC Policy *(13B.06.01.04)*, transferable courses taken in fulfillment of general education requirements at a Maryland public institution will be applied toward the University of Maryland's general education requirements. Careful planning with an academic advisor will ensure that students take appropriate courses and maximize their credit transfer. The total number of general education credits for a Maryland public institution transfer or post baccalaureate credits will not exceed that required of native students.

- A student transferring from a Maryland public community college with an earned associate's degree has completed general education at the University of Maryland, except for any upper-level requirements and the number of credits required to complete general education (40 credits for GenEd). An official transcript from the transfer institution must be received by the University of Maryland with a notation that the associate's degree was awarded.
- A student who has completed the general education program at a Maryland public community college has completed general education at the University of Maryland, except for any upper-level requirements and the number of credits required to complete general education (40 credits for GenEd). The transfer institution must provide documentation on or with the student's official transcript stating the student has completed the general education program.
- A student who earned a baccalaureate degree from the University of Maryland and is pursuing a second degree has completed all general education for the University of Maryland.
- A student who has earned a baccalaureate degree at a Maryland public four-year institution has completed all general education at the University of Maryland. An official transcript from the transfer institution must be received by the University of Maryland with a notation the baccalaureate degree was awarded.
- A student who has completed the general education program at a Maryland public four-year institution has completed all general education at the University of Maryland. The transfer institution must provide documentation on or with the student's official transcript stating that the student has completed the general education program.

## Transfer of General Education Requirements from Non-Maryland Public Institutions

Students transferring from non-Maryland public institutions are required to complete all general education requirements at the University of Maryland with the following exceptions:

- A student who has earned a baccalaureate degree from a regionally accredited institution in the United States has completed all general education at the University of Maryland. An official transcript from the transfer institution must be received by the University of Maryland with a notation that the baccalaureate degree was awarded.
- A student who has earned a baccalaureate degree from an international institution that is recognized by that country's ministry of education and the degree has been determined, by an approved third party evaluator, to be equivalent to a baccalaureate degree in the United States has completed all general education at the University of Maryland. An official transcript from the transfer institution must be received by the University of Maryland with a notation the baccalaureate degree was awarded.

# GENERAL EDUCATION

Office of the Associate Provost and Dean for Undergraduate Studies
2100 Marie Mount Hall
Phone: 301-405-9363
gened@umd.edu
http://gened.umd.edu

**Associate Dean for General Education:** Douglas Roberts, Ph.D.

## General Education at the University of Maryland

Through the General Education program you will discover that education at the University of Maryland is an experience that reaches from the campus classroom and lab to across the globe. As a student you will engage with that larger universe by acquiring new skills and understandings. General Education exposes you to different disciplines, improves your fundamental academic skills, and strengthens your commitment to using knowledge and abilities to better yourself and others.

The General Education program will assist you in preparing for a new "multiverse" of learning, and for the demanding and constantly changing world beyond graduation. It provides necessary skills and basic knowledge, complements and expands the university's course offerings, and connects you more fully to the intellectual community of the Washington-Baltimore metropolitan area, the nation, and the world beyond.

## General Education Program Goals for All Students

- Develop the skills necessary to succeed in academic careers and in professional lives by establishing habits and understanding of clear writing, effective speaking and presentation, and critical and analytic reasoning.
- Strengthen knowledge in major areas of study.
- Broaden knowledge of civilizations past and present.
- Establish the ability to thrive both intellectually and materially and to support themselves, their families, and their communities through a broad understanding of the world in which they live and work.
- Define the ethical imperatives necessary to create a just society in their own communities and in the larger world.

## Important Notes: General Education Courses

- **Must** be selected from the courses coded as meeting General Education requirements. See list of approved General Education courses at Testudo (https://app.testudo.umd.edu/soc/gen-ed/). Click on the General Education list for the term you wish to explore.
- **May** also be used to satisfy college, major, and/or supporting area requirements
- **May not** be taken on a Pass-Fail basis.

For information about general education requirements prior to the 2012-2013 academic year please email gened@umd.edu.

# REQUIREMENTS

## Elements of the General Education Program

The General Education program is comprised of courses that build foundational skills (Fundamental Studies (p. 88)), courses that expand the breadth of your education (Distributive Studies (p. 89)) and courses that explore and study human, societal and cultural differences (Diversity (p. 89)). At least two of your Distributive Studies courses will delve in to a "Big Question" as seen through the lens of a particular academic discipline (Big Question (p. 89)).

### Fundamental Studies

*Master the skills.*

The Fundamental Studies portion of the General Education program consists of 5 courses (nominally 15 credits), with one course in each of the following areas:

- Academic Writing (p. 88)[1]
- Analytic Reasoning (p. 88)
- Mathematics (p. 88)[1]
- Oral Communication (p. 88)
- Professional Writing (p. 88)

#### Academic Writing

The *Academic Writing* requirement prepares students with a foundational understanding of the writing skills needed for success in further studies at Maryland and beyond. All students must earn a grade of C- or better in *Academic Writing* in order to meet this General Education requirement.[1]

#### Analytic Reasoning

Courses in *Analytic Reasoning* foster a student's ability to use mathematical or formal methods or structured protocols and patterns of reasoning to examine problems or issues by evaluating evidence, examining proofs, analyzing relationships between variables, developing arguments, and drawing conclusions appropriately.

If a student successfully completes an *Analytical Reasoning* course that requires a Fundamental Studies *Mathematics* course as a prerequisite, then the *Mathematics* requirement will also be considered to be fulfilled.

#### Mathematics

The goal of the *Mathematics* requirement is to convey the power of mathematics, demonstrated by the variety of problems that can be modeled and solved by quantitative means. Ability in mathematics is a critical measure of how well students are prepared to meet the challenges they will face in their lives beyond school.[1]

#### Oral Communication

Human relationships, from the most formal to the most personal, rest in large measure on skilled listening and effective speaking. Skillful listening and speaking support success in personal relationships, educational undertakings, professional advancement, and civic engagement.

#### Professional Writing

The *Professional Writing* requirement strengthens writing skills and prepares students for the range of writing expected of them after graduation.

[1] These course must be attempted by 30 credits and successfully completed by 60 credits.

## Distributive Studies

*Experience a variety of disciplines.*

A truly well-rounded education consists not only of courses within your major area of study, but also exposure to a wide variety of subjects and ways of thinking. The General Education program accomplishes this through its Distributive Studies courses. You will be able to follow your interests outside of your major, explore the many different opportunities available at the university, learn new skills and ways of study, and apply existing skills in new contexts. The Distributive Studies requirement consists of 8 courses (nominally 25 credits), with 2 courses in each of the following 4 areas:

- History and Social Sciences (p. 89)
- Humanities (p. 89)
- Natural Sciences (p. 89)
- Scholarship in Practice (p. 89)

### History and Social Science

*History and Social Science* courses introduce students to history and to the social science disciplines, with their combination of qualitative and quantitative methods. They include courses in criminology, economics, history, psychology, sociology, and other social sciences.

### Humanities

*Humanities* courses study the history and the genres of human creativity. They include courses in literatures in any language, art and art history, classics, and music and music history, as well as in the disciplines of linguistics and philosophy, among others.

### Natural Sciences

*Natural Science* courses introduce the concepts and methods of studying the natural world. Courses include the traditional physical and life sciences, environmental science, animal and avian science, and plant science, among others. ***One of the two courses selected must include a substantial, rigorous laboratory experience.***

### Scholarship in Practice

*Scholarship in Practice* courses engage students in applying a body of knowledge to create professional products or works of art. Architecture, business, education, engineering, and journalism offer courses that lead to products such as architectural designs, new technologies, innovative publications, new computer software, business plans, advertising campaigns, educational curricula, and bioengineering. Creative and artistic performance courses lead students to produce writing portfolios, plays, operas, dance productions, art exhibits, and creative media. Scholarship in Practice also includes courses that combine competency in speaking, writing, and translation in a foreign language. ***One of the two Scholarship in Practice courses selected must be outside the student's major requirements.***

## Big Question Courses (formerly I-Series)

*Explore Big Questions from a unique suite of courses that form the cornerstone of Distributive Studies.*

***The Big Question courses are the signature of General Education at the University of Maryland.*** Big Question courses are lively and contemporary. They speak to important issues that spark the imagination, demand intellect, and inspire innovation. They challenge students to wrestle with big questions, and examine the ways that different disciplines address them. Big Question courses are not surveys of particular fields of knowledge. Instead, Big Question courses provide students with the basic concepts, approaches, and vocabulary of particular disciplines and fields of study as well as an understanding of how experts in those disciplines and fields employ terms, concepts, and approaches. ***Two of the eight courses used to satisfy the Distributive Studies requirement must be Big Question courses.***

## Diversity

*Explore human, social, and cultural differences.*

The Diversity component of the General Education requirement consists of courses in the following two areas:

- Understanding Plural Societies (p. 89)
- Cultural Competence (p. 89)

### Understanding Plural Societies

Life in a globally competitive society of the twenty-first century requires an ability to comprehend both theoretical and practical dimensions of human difference. From that perspective, *Understanding Plural Societies* is the centerpiece of the university's Diversity requirement. Courses in this category speak to both the foundations—cultural, material, psychological, historical, social, and biological—of human difference and the operation or function of plural societies.

### Cultural Competence

Cultural competence provides opportunities to gain an increased understanding of cultures and cultural practices, while learning to communicate effectively across cultural differences in a diverse society and world. This diversity category reflects a developmental, on-going process through which students learn about the lived experiences of individuals as members of socio-cultural groups and the complex interactions between groups. *Cultural Competence* courses emphasize acquisition of new knowledge, thoughtful consideration of issues of equity and justice, critical thinking, self-reflection, empathy, engaged global citizenship, and the development of skills necessary to work effectively with individuals, groups, and teams from diverse identities and perspectives.

To fulfill the Diversity requirement, students must complete:

- Two *Understanding Plural Societies* courses

  OR

- One *Understanding Plural Societies* course and one *Cultural Competence* course

Courses fulfilling the Diversity requirement may double-count in an approved Distributive Studies category.

# More Information

- To view the General Education Requirement Checklist and other resources, see: http://gened.umd.edu/students/student-resources/.

- To view Frequently Asked Questions, see: http://gened.umd.edu/faqs-gened.html.

# THE COLLEGES AND SCHOOLS


- College of Agriculture and Natural Resources (p. 92)
- School of Architecture, Planning and Preservation (p. 136)
- College of Arts and Humanities (p. 144)
- College of Behavioral and Social Sciences (p. 246)
- The Robert H. Smith School of Business (p. 293)
- College of Computer, Mathematical, and Natural Sciences (p. 308)
- College of Education (p. 364)
- A. James Clark School of Engineering (p. 398)
- College of Information (p. 441)
- The Philip Merrill College of Journalism (p. 452)
- School of Public Health (p. 461)
- School of Public Policy (p. 477)
- The Universities at Shady Grove (p. 482)
- Office of Undergraduate Studies (p. 512)

# College of Agriculture and Natural Resources

0108 Symons Hall
Phone: 301-405-2078
http://agnr.umd.edu

**Dean:** Craig Beyrouty, Ph.D.
**Associate Deans:** Jinhee Kim, Ph.D., Puneet Srivastava, Ph.D., and Joseph Sullivan, Ph.D.
**Assistant Deans:** Sarah Balcom, DVM, Frank J Coale, Ph.D., Carolyn Fernandez, and Jessica Vernon

The College of Agriculture and Natural Resources offers a variety of academic programs that apply science, management, design, and engineering to improve the world in which we live and work. Feeding the world's population, developing scientifically-based land-use practices and policies, understanding animal and plant biology, improving nutrition and its effects on human health, conserving and restoring ecosystems, and profitably managing farms and agribusinesses in harmony with the environment are all vital concerns of the college. Integrating the use and protection of natural resources in the production of food and nursery crops is a challenge facing students.

In addition to course work, undergraduates have opportunities to work closely with faculty in state-of-the-art facilities including those for animal sciences, dietetics, environmental science and technology, landscape architecture, plant sciences, and veterinary medicine. The college also serves as the academic home of the Maryland Campus of the Virginia-Maryland Regional College of Veterinary Medicine. Nearby resources such as the U.S. Department of Agriculture's Beltsville Agricultural National Research Center, the National Institutes of Health, the Food and Drug Administration, the Smithsonian Institution and the National Zoo, Maryland's Departments of Agriculture and Natural Resources, and the Patuxent Wildlife Research Center enhance teaching, research, internship, and career opportunities for students. Field study courses offered in Azerbaijan, Brazil, Belize, Costa Rica, Italy, Peru, Russia, and Taiwan expose students to other cultures and environments. Learning opportunities are also strengthened through student involvement in such co-curricular activities as the College Honors Program, AGNR Undergraduate Research Program, career programs, leadership workshops, and student clubs.

## DEPARTMENTS

### Departments and Units

- Agricultural and Resource Economics (p. 95)
- Animal and Avian Sciences (p. 100)
- Applied Agriculture Certificate (p. 106)
- Environmental Science and Policy (p. 109)
- Environmental Science and Technology (p. 115)
- International Agriculture and Natural Resources Certificate (p. 121)
- Nutrition and Food Science (p. 121)
- Plant Science and Landscape Architecture (p. 125)

## ACADEMIC PROGRAMS

### Majors

- Agricultural and Resource Economics Major (p. 96)
- Agricultural Science and Technology Major (p. 126)
- Animal Sciences Major (p. 103)
- Environmental Science and Policy Major (p. 110)
- Environmental Science and Technology Major (p. 116)
- Fermentation Science Major (p. 122)
- Landscape Architecture Major (p. 131)
- Nutrition and Food Science Major (p. 123)
- Plant Sciences Major (p. 133)

### Minors

- Agricultural Science and Technology Minor (p. 130)
- Global Poverty Minor (p. 99)
- Landscape Management Minor (p. 133)
- Soil Science Minor (p. 120)
- Sustainability Studies Minor (AGNR) (p. 115)

### Certificates

- Applied Agriculture Certificate (p. 106)
- International Agriculture and Natural Resources Certificate (p. 121)

## ADVISING

Each student in the college is assigned a faculty advisor to assist in selecting courses, accessing academic enrichment opportunities, and making strategic career decisions. Advisors normally work with a limited number of students and are able to give individual guidance. Both freshmen entering with a definite choice of curriculum and transfer students are assigned to departmental advisors for counsel and planning of all academic programs as soon as possible. Students have access to additional advising through their home department's undergraduate program office and through the college's student services office. AGNR Peer Mentors, academically talented and university-engaged upperclassmen, provide an additional advising resource for students in the college.

Specifics of advisor assignment are available in the undergraduate office of each department.

## OPPORTUNITIES

### Living-Learning Programs

The college sponsors, through its Environmental Science and Policy Program, the Environment, Technology and Economy curriculum in College Park Scholars. Admission to College Park Scholars is selective and by invitation only. For further information, see the College Park Scholars Program (p. 512).

### Specialized Academic Programs

The Institute of Applied Agriculture offers 60-credit certificate programs designed primarily for professional development. Options offered include Agribusiness Management, Equine Business Management, Golf Course Management, Golf Course Construction Management, Landscape Management, Ornamental Horticulture, Sports Turf Management,

Sustainable Agriculture and Turfgrass Management. Some two-year program students continue on in regular four-year programs in the college and several of the college's majors allow limited use of Institute courses in their programs.

## Pre-Veterinary Medicine

1409 Animal Sciences Center
Phone: 301-405-6495
sbalcom@umd.edu
http://ansc.umd.edu/undergraduate/vet-school-faq/

The College of Agriculture and Natural Resources is the most popular choice for students who wish to pursue veterinary medicine. Two excellent majors not to be missed are housed in the Department of Animal and Avian Sciences. The Agricultural and Veterinary Medicine major offers a student an accelerated academic path with all recommended courses for veterinary school and the opportunity to apply at the end of the junior year. The Sciences/Pre-Professional major offers a student a four year academic path with all recommended courses for veterinary school and the opportunity to apply upon receipt of the bachelor of science (B.S.) degree.

University of Maryland students in any major may prepare for admission to veterinary school by completing the basic science and other courses required by veterinary colleges. The College of Agriculture and Natural Resources major in Animal Sciences (Science/Pre-professional option) includes many of the commonly required courses; however, students should consult catalogs from the veterinary schools to which they are interested in applying to determine the specific courses required by each. That information is available through the American Association of Veterinary Medical Colleges (http://aavmc.org).

Advising for pre-veterinary students occurs at two levels: initially, Dr. Sarah Balcom, DVM, pre-veterinary advisor in the Department of Animal and Avian Sciences (1409 Animal Sciences Center; 301-405-6495 or email at sbalcom@umd.edu), will advise students, regardless of major, about preparing for veterinary school. During the freshmen and sophomore years, advising is done through spring group advising meetings which cover topics such as coursework, grades, finances, extra-curricular activities, gaining animal and veterinary experience, and securing academic and professional references. For students in the process of applying to veterinary school, Dr. Balcom is available for email and one-on-one consultations. As students progress and establish academic credentials, they should also use the advising resources of the Virginia-Maryland Regional College of Veterinary Medicine, 8075 Greenmead Drive, University of Maryland, College Park, MD 20742-3711. Dr. Nathaniel Tablante (301-314-6810, nlt@umd.edu) is the pre-veterinary advisor for the Regional College at that location.

There is also an active pre-veterinary society (http://agnr.umd.edu/student-opportunities/clubs-and-organizations/pre-vet-society/) on campus that provides its members with regular speakers, animal volunteering opportunities, networking, and comradery. Pre-veterinary students are strongly encouraged to join.

Pre-veterinary students are asked to read our Pre-veterinary advising guide (http://ansc.umd.edu/undergraduate/vet-school-faq/), as it answers many common questions about preparing for and applying to veterinary schools.

### Early Admission

Students enrolled in the Combined Degree Option (http://ansc.umd.edu/undergraduate/program-options/combined-ag-veterinary-medicine-1299d/) are eligible for a special degree program that confers a Bachelor of Science degree in Agriculture and Pre-Veterinary Medicine. Students who will have completed 90 undergraduate credits (including all science courses required for veterinary school application and university general education) and who will have met other application criteria for veterinary schools by the end of the junior year, may apply in the Fall of their junior year. If they matriculate in an accredited college of veterinary medicine, they may apply the successful completion of the first 30 hours of their professional training towards the completion of their baccalaureate degree. See the Undergraduate Catalog entry for Animal Sciences for more details.

## Applied Agriculture Certificate

**Institute of Applied Agriculture (60-credit Certificate in Applied Agriculture)**
College of Agriculture and Natural Resources
2123 Jull Hall
Phone: 301-405-4685
iaa-request@umd.edu
http://iaa.umd.edu

**Director:** Glori Hyman

Through the Institute of Applied Agriculture (IAA) students earn a UMD Certificate in Applied Agriculture. Students may select one of the following concentrations: Agricultural Business Management, Agricultural Leadership and Communication, General Turfgrass Management, Golf Course Management, Landscape Management, Ornamental Horticulture, Sports Turf Management, and Sustainable Agriculture. The IAA provides students with the entrepreneurial and technical skills needed to manage and lead successful agricultural enterprises.

The IAA has a separate admission policy which can be found on its website. Upon completion of the program, most students accept job offers. However, students are welcome to transfer to the University of Maryland, College Park; University of Maryland University College; or other schools.

**Agriculture Forward at the University of Maryland** (Ag Forward) is an accelerated program for first-time university students who are interested in earning dual credentials from the University of Maryland, College Park. Students begin their studies in the Institute of Applied Agriculture (IAA). After successfully completing 30 credits at the IAA with a GPA of at least 3.0., students are eligible to transfer into a bachelor's degree program within the College of Agriculture and Natural Resources. Students continue to earn their Certificate in Applied Agriculture while working on their bachelor's degree.

# College Honors Program

Students may apply for admission to the College Honors program after completing 60 credits with a minimum 3.2 GPA in a program within the college. Honors students work with a faculty mentor and must take at least 12 credits of honors courses including a senior thesis. Interested students should contact their faculty advisor.

# Approved Student Societies and Professional Organizations

Student participation in professional societies, clubs, and interest groups is extensive in the college, and students find opportunity for varied expression and growth in the following organizations:

AGNR Peer Mentors; AGNR Student Ambassadors; AGNR Student Council; Alpha Zeta; Alpha Gamma Rho; Animal and Avian Sciences Graduate Student Association; Block and Bridle; Collegiate 4-H; ENSPire, Food and Nutrition Club; Horticulture Club, Landscape Architecture Student Association; Natural Resources Management Society; Sigma Alpha; UM Equestrian Club; UM Food Science Club; UM Student Chapter of Golf Course Superintendents Association of America; Minorities in Agriculture and Natural Resources and Related Sciences (MANRRS) and Veterinary Science Club.

# Student Engagement and Service Units

## Virginia-Maryland Regional College of Veterinary Medicine, Maryland Campus

College of Agriculture and Natural Resources
1202 Gudelsky Veterinary Center
Phone: 301-314-6820
nlt@umd.edu
http://vetmed.umd.edu

**Associate Director, Center for Public and Corporate Veterinary Medicine:** Nathaniel Tablante, DVM

The Virginia-Maryland Regional College of Veterinary Medicine is operated by the University of Maryland and the Virginia Polytechnic Institute and State University. Each year, 30 Maryland and 50 Virginia residents comprise the entering class of a four-year program leading to a Doctor of Veterinary Medicine (DVM).

The first three years are given at Virginia Polytechnic Institute and State University in Blacksburg, Virginia. The final year of instruction is given at several locations, including the University of Maryland, College Park.

A student desiring admission to the college must complete the pre-veterinary requirements and apply for admission to the professional curriculum. Admission to this program is competitive, and open to all Maryland residents. All Maryland residents' applications are processed at the College of Veterinary Medicine, Maryland Campus, University of Maryland, College Park.

## Institute of Applied Agriculture (Two-Year Certificate Program)

College of Agriculture and Natural Resources
2123 Jull Hall
Phone: 301-405-4685
iaa@umd.edu
http://iaa.umd.edu

**Director:** Glori Hyman

The Institute of Applied Agriculture (IAA) awards academic certificates in Agricultural Business Management, Golf Course Management, Golf Course Construction Management, Landscape Management, Ornamental Horticulture, Sports Turf Management, Sustainable Agriculture and Turfgrass Management. As a two-year program, the IAA has a separate admission policy. Upon completion of the program, students are welcome to transfer to the University of Maryland, College Park; University of Maryland University College; and other schools.

For more information about the IAA, its admissions procedures, and requirements, contact the Institute of Applied Agriculture, 2123 Jull Hall, University of Maryland, College Park, MD 20742-2525.

# Financial Assistance

A number of scholarships are available for students entering or already enrolled in the College of Agriculture and Natural Resources. These include:

AGNR Alumni Association Scholarship; AGNR General Scholarship; Arthur M. Ahalt Memorial Scholarship; Attorney General's Agricultural and Natural Resources Scholarship; Professor John Axley Memorial Scholarship; Eileen Barnett Scholarship; Beltsville Garden Club Scholarship; Bruce and Donna Berlage Scholarship; Chester F. Bletch Endowment; Bowie-Crofton Garden Club Scholarship; Frank D. Brown Memorial Scholarship; Joseph Byrd Foundation Scholarship; Jonas and Joan Cash Student Award Scholarship; Chapel Valley Landscape Honorary Scholarship; George Earle Cook, Jr. Scholarship; Ernest T. Cullen Memorial Scholarship; Jaime Dannemann Scholarship; R.F. Davis Memorial Scholarship; Jerry V. DeBarthe Memorial Scholarship; William R. DeLauder Scholarship; Frank J. Duda Turfgrass Scholarship; Mylo S. Downey Memorial Scholarship; Equine Studies Scholarship; Explore AGNR Scholarship; James R. Ferguson Memorial Scholarship; Kenneth S. Fowler Memorial Endowed Scholarship; Thomas A. Fretz Agriculture and Natural Resources Scholarship; James & Sarah Goddard Memorial Scholarship; William D. Godwin Endowed Scholarship; Golf Course Builders of America Association Foundation Scholarship; Manasses J. & Susanna Jarboe Grove Scholarship; Tom Hartsock Animal Management Scholarship; H. Palmer Hopkins Scholarship established by Charles W. Coale, Jr. & Ellen Kirby Coale; Charles & Judy Iager Scholarship; Land Grant Scholarship; James & Gertrude Leamer Scholarship; Donald Leishear International Travel Scholarship; Lee Majeskie Dairy Youth Scholarship; Maryland Greenhouse Growers Association Scholarship; James R. & Patricia M. Miller Outstanding Senior Scholarship; John and Marjorie Moore International Agriculture & Natural Resources Student Travel Scholarship; James and Dessie Moxley Scholarship; Paul R. Poffenberger Memorial Scholarship; Jennifer Russo Memorial Scholarship; Ross & Pauline Smith Scholarship; J. Herbert Snyder Educational Scholarship; Southern States Cooperative Scholarship; Hiram I. Stine Memorial Scholarship; T.B. Symons Memorial Scholarship; TIC Gums Scholarship; Vansville Farmers Club Scholarship; A.V. Vierheller Scholarship; Siegfried Weisberger, Jr. Memorial Scholarship; Theo & Georgianna Miles Weiss Memorial Scholarship; and the William R. Winslow Scholarship.

The College is privileged to offer additional support in the form of interest-free loans through the Catherine Brinkley Loan Fund which are available to students who are residents of Maryland and progressing in programs within the College of Agriculture and Natural Resources.

# Awards

The Agriculture and Natural Resources Alumni Chapter provides recognition each year for the Outstanding Senior in the two-year and four-year programs.

# Departments and Centers

Undergraduate credit instruction is offered by the Departments of Animal and Avian Sciences (ANSC), Agricultural and Resource Economics

(AREC), Environmental Science and Technology (ENST), Nutrition and Food Science (NFSC), and Plant Science and Landscape Architecture (PSLA). Additionally, the Environmental Science and Policy (ENSP) major is based and administered within the College of Agriculture and Natural Resources; it offers specializations advised within this college as well the colleges of Behavioral and Social Sciences, Chemical, Mathematical and Natural Sciences. Also, the Agricultural Science and Technology major within PSLA offers students the opportunity to double major in Agriculture Education. Additional courses are provided through the 2-year certificate program in the Institute of Applied Agriculture.

# Special Advantages and Facilities

Educational opportunities in the College of Agriculture and Natural Resources are enhanced by the proximity of several research units of the federal government. Teaching and research activities in the college are conducted with the cooperation of scientists and professional people in government positions. Of particular interest are the National Agricultural Research Center at Beltsville, the National Agricultural Library, the National Arboretum, and the Food and Drug Administration.

Instruction in the basic biological and social sciences, and landscape design is conducted in modern, technologically-equipped classrooms and laboratories. The application of basic principles to practical situations is demonstrated for the student in numerous ways. In addition to on-campus facilities, the college operates several education and research facilities throughout Maryland. Horticultural and agronomic crops, turf, beef, horses, dairy cattle, and poultry are maintained under practical and research conditions and may be used by our students. These centers, as well as other selected locations on and off campus also serve as living laboratories for environmental studies.

# Research Units

## Maryland Agricultural Experiment Station

The Maryland Agricultural Experiment Station (MAES) supports research conducted primarily by 120 faculty scientists located within the College of Agriculture and Natural Resources. Faculty use state-of-the-art facilities such as a new Research Greenhouse Complex and Environmental Simulator, as well as 10 off-campus research locations, for research in the science, business, policy, and practice of agriculture. MAES supports research that benefits consumers and producers alike; for example, our significant focus on the environment protects valuable natural resources such as the Chesapeake Bay. Undergraduate students also benefit from mentoring by MAES-supported faculty and instructional use of MAES facilities statewide.

## University of Maryland Extension

The University of Maryland Extension educates citizens in the application of practical, research-based knowledge to critical issues in agricultural and agribusiness including aquaculture; natural resources and the environment; human development, nutrition, diet, and health; youth development and 4-H; and family and community leadership. The statewide program includes more than 180 faculty and support staff located in 23 counties, the City of Baltimore, four regional centers, and the University of Maryland's College Park and Eastern Shore campuses. In addition, more than 15,000 volunteers and citizens in Maryland give generously of their time and energy.

## Center for Food Safety and Security Systems (CFS $^3$)

The **Center for Food Safety and Security Systems** (CFS3) provides world-class research, education and outreach on issues related to food and water defense, safety and protection. Housed in the Department of Nutrition and Food Science, this new center will provide additional opportunity for students to become involved in issues of significance for homeland security. For information on CFS3, please see http://cfs3.umd.edu or call 301-405-0773.

## Harry R. Hughes Center for Agro-Ecology, Inc.

The **Harry R. Hughes Center for Agro-Ecology, Inc.** is a private, non-profit 501 (c) 3 organization affiliated with the University of Maryland. The Center brings together diverse interests from the agricultural, forestry, and environmental communities for the purpose of retaining Maryland's working landscapes and the industries they support while protecting and improving the health of the Chesapeake Bay and its tributaries. For further information see http://agnr.umd.edu/research/research-and-education-centers-locations/harry-r-hughes-center-agro-ecology/ or call at 410-827-6202.

## Joint Institute for Food Safety and Nutrition

The **Joint Institute For Food Safety and Nutrition** (JIFSAN), established between the US FDA and the University of Maryland in 1996, is a jointly administered research and education program. For information on JIFSAN, see http://jifsan.umd.edu or call 301-405-8382.

## Northeastern Regional Aquaculture Center

The **Northeastern Regional Aquaculture Center** (NRAC) is one of five Regional Aquaculture Centers established by the U. S. Congress for the United States. Funded by the USDA, and representing 12 states and the District of Columbia, NRAC develops and sponsors cooperative regional research and extension projects in support of the aquaculture industry in the northeastern United States. For further information see http://agnr.umd.edu/research/research-and-education-centers-locations/northeastern-regional-aquaculture-center/ or call 301-405-6085.

# Agricultural and Resource Economics

**College of Agriculture and Natural Resources**
2200 Symons Hall
Phone: 301-405-1293
arec-admin@umd.edu
http://arec.umd.edu

Agricultural and Resource Economics is a world-class department focused on agricultural economics and policy, environmental and natural resource economics, and international economic development. The faculty are renowned for their scholarship and research, policy experience, and professional service. Our top-ranked Ph.D. program has a diverse and high-quality student body from the U.S. and countries around the world. Our undergraduate major, Agricultural and Resource Economics includes concentrations in:

- **Agribusiness**
- **Agricultural and Resource Economics**
- **Environmental and Resource Economics**

We also support a concentration in **Environmental Economics** in the Environmental Science and Policy (ENSP) program. Students can pursue a minor in **Global Poverty** that allows students to learn about poverty issues from leading scholars in small classes. Policy and public education programs address issues of importance to stakeholders at local, state, national and international levels.

# PROGRAMS

## Major

- Agricultural and Resource Economics Major (p. 96)

## Minor

- Global Poverty Minor (p. 99)

# ADVISING

Because the program is flexible, advising is mandatory every semester. Please visit this link for more information: http://arec.umd.edu/undergraduate/advising/.

# OPPORTUNITIES

## Undergraduate Research Experiences

Because it is part of a land grant university, the department also has responsibility for research and technology transfer. During undergraduate study, students are encouraged to conduct independent research in faculty laboratories on campus or at the nearby U.S. Department of Agriculture Beltsville Agricultural Research Center and other area locations.

*AREC faculty members provide a unique and rewarding research experience for undergraduates through the UMD First-Year Innovation & Research Experience (FIRE) program. The research agenda is continually updated and is designed to engage multiple focus areas in the department's advanced computational collaborative learning center. Current examples include the economics of air quality and environmental justice, and the spatial management of invasive agricultural pests and diseases. Students develop quantitative research skills including: framing research questions for quantitative policy analysis, preparing large data sets for analysis, data analytics and visualization techniques, and preparing research results for presentation, publication and outreach. This opportunity is available to first-year students of all majors. For more information please visit:* http://fire.umd.edu.

## Internships

### Internship Program

This internship experience is open to current AREC undergraduate students and students in the Global Poverty minor.

### Internship Program Description

Students can pursue a wide variety of internship opportunities in the public, private and non-profit sectors. Internships may be on- or off-campus, paid or unpaid. Students are responsible for finding their own internships and identifying a faculty to serve as supervisor for AREC386. All internships must be approved by the Assistant Director (soppelsa@umd.edu) before the student registers for internship credit. AREC386 is not repeatable and the internship must be completed in the same semester a student registers for the course.

Please visit this link for additional information: http://arec.umd.edu/undergraduate/current-students/internship-program/.

## Scholarships and Financial Assistance

AREC offers recruitment scholarships to selected new AREC majors and merit scholarships to current AREC undergrads with the highest GPAs. These awards are in addition to any funding received from the campus or from the college. Merit scholarships are awarded on a semester basis and depend on the availability of funds. Scholarship awardees are required to conduct themselves in accordance with the rules and regulations of the university.

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# Agricultural and Resource Economics Major

**Program Director:** Lars Olson, Ph.D.

Agricultural and Resource Economics majors complete a set of foundational courses in economics, analytics, and business statistics; specialize in one of three tracks: Environmental and Resource Economics, Agribusiness, or Agricultural and Resource Economics; and take a complementary field from Business Management, Environmental Data Science, Agricultural Management and Entrepreneurship, Ag Food and Natural Resources Systems, Environmental and Resource Management and Policy, Sustainable Development or Advanced Degree Preparation. The curriculum includes courses in economic analysis, energy economics, agribusiness management, data science, environmental economics, economic development, and natural resource policy. The major provides a strong foundation for careers in the private, public and non-profit sectors in business, economics, agriculture, management, environmental or natural resource policy, and sustainable development. Well qualified students may also choose to pursue an advanced degree in applied economics, business, statistics or law.

## Program Learning Outcomes

Upon completion of the degree program, students should have acquired the following knowledge and skills:

1. Disciplinary Foundation – AREC majors will demonstrate knowledge of economic principles, terms and concepts and their application to analysis of economic problems in agricultural, environmental and resource economics, including the economics of consumers, producers and markets.
2. Critical and Analytical Thinking – AREC majors will demonstrate an ability to think critically about economic issues and to analyze and draw inferences from data.
3. Understanding Economic Policy – AREC majors will demonstrate knowledge of laws, policies and institutional arrangements in agricultural, environmental and resource economics, their role in determining resource allocation, and how economics can inform policy design.
4. Diversity, Equity and Inclusion – AREC majors will demonstrate an understanding of the causes and consequences of differences in the distribution of agricultural, environmental and natural resources across diverse socioeconomic, racial, and ethnic groups.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Foundational Courses** | | |
| ECON200 | Principles of Microeconomics | 3 |

| | | |
|---|---|---|
| or AREC240 | Introduction to Economics and the Environment | |
| or AREC250 | Elements of Agricultural and Resource Economics | |
| ECON201 | Principles of Macroeconomics | 3 |
| AREC326 | Intermediate Applied Microeconomics | 3 |
| Statistics Requirement: | | 3-6 |
| BMGT230 | Business Statistics | |
| or ECON230 | Applied Economic Statistics | |
| and | | |
| STAT100 | Elementary Statistics and Probability | |
| or MATH107 | Introduction to Math Modeling and Probability | |
| or | | |
| STAT400 | Applied Probability and Statistics I | |
| MATH120 | Elementary Calculus I | 3 |
| or MATH140 | Calculus I | |
| **Specialization (from list below)** | | **24** |
| Agribusiness | | |
| Agricultural and Resource Economics | | |
| Environmental and Resource Economics | | |
| **Total Credits** | | **39-42** |

# Specializations: Agribusiness

| Course | Title | Credits |
|---|---|---|
| **Select five of the following courses:** | | **15** |
| AREC306 | Farm Management and Sustainable Food Production | |
| AREC380 | Data Science for Environmental and Resource Economics | |
| AREC405 | Economics of Production | |
| AREC422 | Econometric Analysis in Agricultural and Environmental Economics | |
| AREC426 | Economic Methods and Food Consumption Policy | |
| AREC427 | Commodity Pricing and Markets | |
| AREC430 | Introduction to Agricultural and Resource Law | |
| AREC431 | Agricultural Water Quality: Policy and Legal Issues | |
| AREC433 | Food and Agricultural Policy | |
| AREC435 | Commodity Futures and Options | |
| AREC447 | The Economy of China | |
| AREC455 | Economics of Land Use | |
| AREC489 | Special Topics in Agricultural and Resources Economics | |
| Other upper-level AREC courses with permission of advisor. | | |
| **Select three courses from one of the following fields:** | | **9** |
| Business Management | | |
| Agricultural Management and Entrepreneurship | | |
| Student Designed Field | | |
| **Total Credits** | | **24** |

# Agricultural and Resource Economics

| Course | Title | Credits |
|---|---|---|
| **Select five of the following courses:** | | **15** |
| AREC306 | Farm Management and Sustainable Food Production | |
| AREC380 | Data Science for Environmental and Resource Economics | |
| AREC405 | Economics of Production | |
| AREC422 | Econometric Analysis in Agricultural and Environmental Economics | |
| AREC426 | Economic Methods and Food Consumption Policy | |
| AREC427 | Commodity Pricing and Markets | |
| AREC430 | Introduction to Agricultural and Resource Law | |
| AREC431 | Agricultural Water Quality: Policy and Legal Issues | |
| AREC433 | Food and Agricultural Policy | |
| AREC435 | Commodity Futures and Options | |
| AREC445 | Agricultural Development, Population Growth and the Environment | |
| AREC446 | Sustainable Economic Development | |
| AREC447 | The Economy of China | |
| AREC453 | Natural Resources and Public Policy | |
| AREC454 | The Economics of Climate Change | |
| AREC455 | Economics of Land Use | |
| AREC456 | Energy and Environmental Economics | |
| AREC466 | Transportation Engineering, Economics, and Policy | |
| AREC481 | Environmental Economics | |
| AREC489 | Special Topics in Agricultural and Resources Economics | |
| Other upper-level AREC courses with permission of advisor. | | |
| **Select three courses from one of the following fields:** | | **9** |
| Advanced Degree Preparation | | |
| Agricultural, Food and Natural Resource Systems | | |
| Global Hunger, Poverty and Sustainable Development | | |
| Student Designed Field | | |
| **Total Credits** | | **24** |

# Environmental and Resource Economics

| Course | Title | Credits |
|---|---|---|
| **Select five of the following courses:** | | **15** |
| AREC380 | Data Science for Environmental and Resource Economics | |
| AREC405 | Economics of Production | |
| AREC422 | Econometric Analysis in Agricultural and Environmental Economics | |
| AREC431 | Agricultural Water Quality: Policy and Legal Issues | |
| AREC445 | Agricultural Development, Population Growth and the Environment | |
| AREC446 | Sustainable Economic Development | |
| AREC453 | Natural Resources and Public Policy | |
| AREC454 | The Economics of Climate Change | |
| AREC455 | Economics of Land Use | |
| AREC456 | Energy and Environmental Economics | |
| AREC466 | Transportation Engineering, Economics, and Policy | |

| | | |
|---|---|---|
| AREC481 | Environmental Economics | |
| Other upper-level AREC courses with permission of advisor. | | |
| **Select three courses from one of the following fields:** | | **9** |
| Advanced Degree Preparation | | |
| Environmental Data Science | | |
| Environmental and Resource Management and Policy | | |
| Student Designed Field | | |
| **Total Credits** | | **24** |

# Fields:

## Advanced Degree Preparation

| Course | Title | Credits |
|---|---|---|
| **Choose three of the following courses:** | | |
| ECON406 | Advanced Microeconomics | |
| ECON414 | Game Theory | |
| ECON415 | Market Design | |
| ECON422 | Econometrics | |
| ECON423 | Advanced Topics in Econometrics | |
| MATH141 | Calculus II | |
| MATH240 | Introduction to Linear Algebra | |
| MATH241 | Calculus III | |
| STAT401 | Applied Probability and Statistics II | |
| STAT420 | Theory and Methods of Statistics | |
| STAT430 | Introduction to Statistical Computing with SAS | |
| Any other upper-level ECON/MATH/STAT course chosen in consultation with advisor. | | |

## Agricultural, Food and Natural Resource Systems

| Course | Title | Credits |
|---|---|---|
| **Choose three of the following courses:** | | |
| AREC210 | The Food Chain: What Happens As Your Food Goes From Farm to Table | |
| ANSC101 | Principles of Animal Science | |
| ANSC227 | Eating with Eyes Wide Open | |
| ANTH242 | Fire, Farming and Climate Change: An Archaeology Take on the History of Human Impacts on our Planet | |
| ANTH421 | Nutritional Anthropology | |
| ENST441 | Sustainable Agriculture | |
| GEOG431 | Culture and Natural Resource Management | |
| GVPT206 | Appetite for Change: Politics and the Globalization of Food | |
| NFSC100 | Elements of Nutrition | |
| PLSC112 | Introductory Crop Science | |
| PLSC125 | Feeding Ten Billion by 2050: Food Security and Crop Protection | |

[1] Substitutions to the above listed courses may be made with the permission of advisor.

## Business Management

| Course | Title | Credits |
|---|---|---|
| **Choose three of the following courses:** | | |
| BMGT340 | Business Finance (BMGT340N) [1] | |
| BMGT350 | Marketing Principles and Organization (BMGT350N) | |
| BMGT364 | Managing People and Organizations (BMGT364N) | |
| BMGT380 | Business Law I (BMGT380N) | |

[1] Course has prerequisites that do not count toward major requirements.

## Agricultural Management and Entrepreneurship

| Course | Title | Credits |
|---|---|---|
| **Choose three of the following courses:** | | |
| ENES140 | Discovering New Ventures | |
| ENES461 | Advanced Entrepreneurial Opportunity Analysis in Technology Ventures | |
| ENES471 | Legal Aspects of Entrepreneurship | |
| INAG103 | Agricultural Marketing | |
| INAG201 | Agricultural Human Resources Management | |
| INAG204 | Agricultural Business Management | |
| INAG205 | Analyzing Alternative Enterprises | |
| BMGT289E | Entrepreneurial Thinking for Non-Business Majors: How Not to Miss Great Opportunities Your Life Throws at You | |
| or ENES210 | Entrepreneurial Opportunity Analysis and Decision-Making in 21st Century Technology Ventures | |
| or INAG102 | Agricultural Entrepreneurship | |

## Global Hunger, Poverty and Sustainable Development

| Course | Title | Credits |
|---|---|---|
| **Choose three of the following courses:** | | |
| AREC260 | The Science of Gender in Economics and Development | |
| AREC345 | Global Poverty and Economic Development | |
| AREC365 | World Hunger, Population, and Food Supplies | |
| AREC445 | Agricultural Development, Population Growth and the Environment Course may not double count toward upper level specialization requirements | |
| AASP320 | Poverty and African American Children | |
| AGNR/ PLCY301 | Sustainability | |
| ANTH407 | Anthropology and Development | |
| HLTH325 | Poor in America: Health and Wellbeing | |
| SOCY340 | Globalization's Winners and Losers | |

## Environmental Data Science

| Course | Title | Credits |
|---|---|---|
| **Choose three of the following courses:** | | |
| AREC280 | Harvesting Big Data to Examine Agriculture and Climate Change | |
| AREC380 | Data Science for Environmental and Resource Economics Course may not double count toward upper level specialization requirements | |
| AREC422 | Econometric Analysis in Agricultural and Environmental Economics Course may not double count toward upper level specialization requirements | |
| FIRE298 | FIRE Semester 3 | |
| AOSC247 | Scientific Programming: Python | |
| or GEOG276 | Principles of Python Programming and Geocomputing | |
| GEOG272 | Introduction to Earth Observation Science | |
| GEOG373 | Geographic Information Systems | |
| AOSC447 | Machine Learning in Earth Science | |

## Environmental and Resource Management and Policy

| Course | Title | Credits |
|---|---|---|
| AREC200 | The Chesapeake Bay Ecosystem: Intersection of Science, Economics, and Policy | |
| AGNR/ PLCY301 | Sustainability | |
| ANTH242 | Fire, Farming and Climate Change: An Archaeology Take on the History of Human Impacts on our Planet | |
| or ANTH266 | Changing Climate, Changing Cultures | |
| AOSC375 | Introduction to the Blue Ocean | |
| ENST403 | Invasive Species Ecology | |
| ENST485 | Water Management in Urban Environment | |
| FGSM340 | Energy and Environmental Policy | |
| GEOG332 | Economic Geography | |

## Student Designed Field

| Course | Title | Credits |
|---|---|---|
| This field requires a written proposal listing at least three courses totaling at least 9 credits. [1] | | 9 |
| **Total Credits** | | **9** |

[1] The proposal must be submitted to the Undergraduate Committee of the AREC department. Committee approval must be obtained 30 or more credit hours before graduation. A student designed field may be used to study a foreign language as part of the AREC curriculum.

## Other Requirements for the Major

All courses must be passed with a grade of "C-" or better to count towards prerequisite courses, major core courses, or field requirements. "C- or better" means any grade for which the University awards 1.7 or more quality points in calculating GPA. Beginning with students matriculating Fall 2012, to be awarded a baccalaureate degree, students must have a minimum (2.00) cumulative grade point average across all courses used to satisfy major degree requirements.

## GRADUATION PLANS

Click here (https://agnr.umd.edu/academics/advising/four-year-plans/) for roadmaps for graduation plans in the College of Agricultural and Natural Resources.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Global Poverty Minor

**Agricultural and Resource Economics (AREC)**
2200 Symons Hall
arec-admin@umd.edu
http://arec.umd.edu
Advising (https://amp.umd.edu/terpengage/) for current or prospective majors.

**Program Advisor:** Maria E. Soppelsa

The Global Poverty minor develops an awareness and understanding of the dimensions of global poverty, its causes and consequences, and the scope of policies aimed at poverty alleviation. Students will discover how incentives, resources, and social and political institutions influence the incidence of poverty across and within countries. Students in the minor will explore the relationships between poverty and determinants of human welfare such as hunger, health, education and environmental quality.

## REQUIREMENTS

Students must complete at least 15 credits in the minor from the following categories.

| Course | Title | Credits |
|---|---|---|
| **One (1) Global Poverty Signature Course from the following list:** | | **3** |
| AREC345 | Global Poverty and Economic Development | |
| AREC365 | World Hunger, Population, and Food Supplies | |
| **One (1) Global Perspectives Signature course from the following list** | | **3** |
| ANTH265 | Anthropology of Global Health | |
| GEOG330 | As the World Turns: Society and Sustainability in a Time of Great Change | |
| GVPT200 | International Political Relations | |
| GVPT280 | The Study of Comparative Politics | |
| GVPT282 | The Politics of Global Development | |
| GVPT289A | | |
| GVPT289J | | |
| GVPT289 | Special Topics in Government and Politics (GVPT289L: Religions, Beliefs, and World Affairs) | |
| GVPT306 | Global Environmental Politics | |
| GVPT309 | Topics in International Relations | |
| GVPT354 | International Development and Conflict Management | |
| GVPT359 | Topics in Comparative Politics | |

| | |
|---|---|
| ENES269 | Topics in Grand Challenges for Engineering in a Global Context |
| ENES316 | Global Leadership in Engineering, Business, & Technology |
| ENES464 | International Entrepreneurship and Innovation |
| ENES472 | Leading Global Teams and Engaging Across Cultures in Business, Engineering, and Technology |
| ENES474 | Global Perspectives of Engineering |
| BSST330 | |
| BSST331 | Innovations in Counterterrorism |
| BSST334 | States of Emergency |
| BSST335 | Innovations in Countering Violent Extremism |
| BSST340 | Oral Communication for National Security Careers |
| BSST370 | Financing Terror and Hate |
| BSST372 | Terrorist Hostage Taking |
| **Three (3) Electives** | **9** |
| GEOG130 | Development Geography: Environmental & Social Justice |
| GEOG330 | As the World Turns: Society and Sustainability in a Time of Great Change |
| GEOG423 | Latin America |
| AREC345 | Global Poverty and Economic Development |
| AREC365 | World Hunger, Population, and Food Supplies |
| AREC360 | Global Agriculture: Developing Extension Education & Agriculture Technologies in Africa |
| ANTH265 | Anthropology of Global Health |
| GVPT282 | The Politics of Global Development |
| ECON314 | Economic History, Development and Policy |
| ECON315 | Economic Development of Underdeveloped Areas |
| ECON317 | Global Economic Policies |
| ECON375 | Economics of Poverty and Discrimination |
| ECON416 | Analysis of Economic Development |
| ECON418 | Economic Development of Selected Areas |
| ENST100 | International Crop Production-Issues and Challenges in the 21st Century |
| FMSC110 | Families and Global Health |
| FMSC310 | Maternal, Child and Family Health |
| FMSC381 | Family Inequality |
| GVPT200 | International Political Relations |
| GVPT282 | The Politics of Global Development |
| GVPT289A | |
| GVPT289J | |
| GVPT306 | Global Environmental Politics |
| GVPT354 | International Development and Conflict Management |
| HONR228 | Honors Seminar (HONR228N: Evaluating Global Development Assistance) |
| HONR228 | Honors Seminar (HONR228R: Parenting and Poverty: The Effects of Growing Up Poor on Children's Development) |
| NFSC425 | International Nutrition |
| AREC260 | The Science of Gender in Economics and Development |
| ANTH210 | Introduction to Medical Anthropology and Global Health |
| ANTH310 | Method & Theory in Medical Anthropology and Global Health |
| CCJS325 | Slavery in the Twenty First Century: Combating Human Trafficking |
| CCJS370 | Race, Crime and Criminal Justice |
| ECON175 | Inequality: Determinants and Policy Remedies |
| HLTH325 | Poor in America: Health and Wellbeing |
| FGSM380 | Responses to Global Challenges |
| MIEH400 | Introduction to Global Health |
| Up to 3 elective credits can be from the following (optional, and pending advisor approval): | |
| Study abroad | |
| Internship | |
| Experiential learning related to poverty | |
| **Total Credits** | **15** |

No course may be used to satisfy the requirements of more than one minor.

A course cannot be used to satisfy two requirements, i.e. a course taken to satisfy either of the signature requirements cannot be used as an elective. However, some of the courses above can be used as electives after signature course requirements are satisfied.

At least 9 credits must be at the 300-400 level.

All courses presented for the minor must be passed with a grade of "C-" or better. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.00) cumulative grade point average across all courses used to satisfy minor requirements.

# Animal and Avian Sciences

**College of Agriculture and Natural Resources**
1415 Animal Sciences Center
Phone: 301-405-1373
ansc-chair@umd.edu
http://ansc.umd.edu

The Department of Animal and Avian Sciences was formed in 1997 through the merger of the Animal Science, Dairy Science and Poultry Science Departments. Animal science is the study of domesticated animals used for food, biomedical research and leisure. Our department fulfills a tripartite mission of research, teaching and extension. Departmental research programs are focused in four areas:

1. Animal Genetics and Cell Biology
2. Nutrient Utilization and Management
3. Animal Reproduction and Development
4. Pathobiology & Infectious Diseases

The Animal Science graduate program offers advanced training in each of these research focus areas. Our undergraduate program offers three options to prepare students for their chosen career. Graduates of our program go on to graduate or professional schools, or go directly to work in the fields of animal biotechnology or animal management in the equine, laboratory animal, livestock or poultry industries. Opportunities

are available, both on-campus and off-campus, for hands-on experience with small and large animals.

Our location in the Washington DC metropolitan area offers a wealth of other opportunities for internships and collaborations for undergraduate and graduate students with government agencies such as the USDA, EPA, FDA, and National Zoo. Our University of Maryland Extension efforts provide educational materials and non-degree training for the families and companies working in animal agriculture throughout the State of Maryland. Additional information on all of our efforts and programs can be found through the links on the ANSC website (http://ansc.umd.edu/).

# PROGRAMS

## Major

- Animal Sciences Major (p. 103)

# ADVISING

The Animal Science Department has mandatory advising, which means that a student must fulfill their advising requirement every semester prior to being allowed to register. Students in ANSC currently progress through advising in a system determined to help them explore their goals and get the most accurate information possible in their early advising. We want to help students transition from a typical high school model of advising being about school counselors helping them choose courses to students learning to make their own independent choices regarding education, career, and life, under the mentorship of faculty. Please visit our ANSC website (http://ansc.umd.edu/undergraduate/) for more information on Advising in ANSC (https://ansc.umd.edu/undergraduate/current-students/academics-advising/#advising), including a detailed Advising Guide FAQ (https://ansc.umd.edu/undergraduate/faqs/).

# OPPORTUNITIES

## Academic Programs and Departmental Facilities

Our facilities in the Animal Sciences Center include classrooms, an inviting lecture hall, and a large social area for students. The entire building is Wi-Fi accessible, and numerous charging outlets are available for student use. Our teaching facilities also include two fully-equipped teaching labs and an aquaculture lab, while our animal wing contains animal rooms and a surgery suite.

The Campus Farm (http://ansc.umd.edu/undergraduate/campus-farm/) has been described as a “jewel” to the ANSC undergraduate program activities. It is used extensively in teaching laboratories in undergraduate courses, and includes three barns separately used for horses, sheep, and dairy cows, with temporary occupancy for pigs and beef heifers during short parts of the year. We are one of the few animal science departments with the presence of animals directly on campus. Three student organizations, the Institute for Applied Agriculture, and many “Ag Day” visitors use the farm as well, making it a focal point of our teaching facilities.

## Undergraduate Research Experiences

Because it is part of a land grant university, the Department of Animal and Avian Sciences also has responsibility for research and technology transfer to the animal industry throughout Maryland. During undergraduate study, students are encouraged to conduct independent research in faculty laboratories on campus or at the nearby U.S. Department of Agriculture Beltsville Agricultural Research Center. Students interested in a faculty member's research should directly contact that faculty member. Research jobs and opportunities are also frequently posted on the ANSC Undergraduate listserv, to which all ANSC students are subscribed. More information on how to find research opportunities is available on our Current Students (https://ansc.umd.edu/undergraduate/current-students/) webpage.

## Internships

Students are encouraged to gain practical hands-on and career experience by pursuing internships. Students have completed internships in locations ranging from the area around the university, to cattle farms in the Midwest, agribusiness firms in California, and places like the National Zoo in DC and the National Aquarium in Baltimore. Many animal sciences students use the summer to gain additional applied experience in animal sciences, veterinary medicine or agribusiness. Students can find information about internships, including the process for gaining academic credit for an internship, on the ANSC website's Internship section (http://ansc.umd.edu/undergraduate/internships/). Internship opportunities are also frequently posted on the ANSC Undergraduate listserv, to which all ANSC students are subscribed.

## Honors Program

Students admitted to the AGNR Honors Program (https://agnr.umd.edu/academics/undergraduate-honors/) are eligible to take 3 - 6 credits of ANSC399 (https://ansc.umd.edu/undergraduate/current-students/academics-advising/internships/academic-credit-internships/) within the ANSC Department. Undergraduate honors thesis research is conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended before a faculty committee.

## Student Societies and Professional Organizations

The clubs and organizations affiliated with the Animal Science department allow ample opportunities for leadership, development, hands-on animal experience, and fun!

### Alpha Gamma Rho

http://agnr.umd.edu/student-opportunities/clubs-and-organizations/alpha-gamma-rho-fraternity/

Alpha Gamma Rho is a social/professional fraternity that has been a training ground for leaders in the agriculture and life sciences community since it was established at College Park in 1928. AGR has a rich tradition of alumni contacts with over 50,000 brothers nationwide, including over 700 brothers in the Washington area alone. AGR men are leaders in various clubs within the college and the fraternity is an active member of both the Inter-fraternity Council (IFC) and the Ag Student Council. Alpha Gamma Rho stresses scholarship, leadership and fellowship, and it is well respected among Greek organizations because of their no pledging, substance free, scholars environment. In addition, the chapter house on Princeton Avenue offers the opportunity to live with brothers who are taking the same classes and share many of the same interests which makes it much easier to find a niche on such a large campus.

### Block and Bridle Club

http://umdblockandbridle.wix.com/blockandbridle/

The Animal Husbandry Club at the University of Maryland, provides opportunities for students to gain animal handling experience, build interpersonal relationship skills, and students are given the encouragement to excel! Activities and experiences specifically designed for students of diversified interests in animal agriculture are provided, including experiences with many different domestic species. Membership is open to all undergraduate students interested in getting hands-on experience working with dairy, beef, sheep or swine, and learning more about general animal sciences. Activities include the Ag Day Dairy and Livestock Shows, Harvest Stomp/Fall Festival, fitting of animals for the annual Wye Angus Sale, and other activities working with dairy animals. One can gain further leadership skills by holding an office. Each Spring, elections are held for President, Vice-President, Secretary, Treasurer, and Historian.

## MANNRS (Minorities in Agriculture, Natural Resources and Related Sciences)

http://www.manrrs.org

### MANRRS Missions

This club was reinstated on University of Maryland's campus to provide academic and professional advancement by empowering minorities in agriculture, natural resources and related sciences.

### MANRRS Activities

MANRRS' purpose is to promote exposure to agricultural related professions including veterinarians, lab animal techs, and jobs in the USDA, along with others to minorities. It lists internship opportunities, and holds annual conferences for its members from all chapters. It also serves as a networking tool for students interested in agriculture and related science professions.

Activities include: Club Meetings once a month; Fundraisers to provide funding for field trips to meetings at possibly University of Maryland at Eastern Shore; annual MANRRS conferences and job fairs; Volunteer Opportunities at SPCA; Guest Speakers in the veterinary medicine, agriculture, and lab animal medicine field.

## Maryland Equestrian Club

president.mec@gmail.com
http://sites.google.com/site/marylandequestrianclub/

The Maryland Equestrian Club provides on-campus horseback riding lessons and equine learning opportunities for campus students and faculty at beginner through advanced levels. The ANSC department provides the barn, equipment, riding arenas and horses while the students provide care for the horses. There is a riding fee of $200 per semester for 1 riding lesson a week for the entire semester. Large deductions are easily earned for help with feeding, cleaning stalls or teaching. Club members not riding are strongly encouraged to participate in other club activities, such as educational and fun seminars, field trips and monthly meetings. In the past, MEC members have attended the Columbia Grand Prix and the Washington International Horse Show and taken field trips to the DuPont Veterinary Medical Center in Leesburg, VA. and Days End Horse Rescue Farm in Maryland. Members have also participated in clinics on tack fitting and identifying lameness in horses. Club members, under the leadership of the Executive Board and Directors, make most MEC club decisions. We offer a great opportunity to all students and we're always open to suggestions. We also try to have something for everyone including basic English equitation, Western equitation, dressage, bareback and trail riding, horse and farm management, veterinary care, teaching skills and much more. The MEC is located at the campus horse barn, and our office is in the Shack, right next to the paddocks. There is very limited space in the riding lessons, so e-mail us right away to reserve yourself a spot in the most educational equine club provided by the University of Maryland.

## The Pre-Veterinary Society

http://agnr.umd.edu/student-opportunities/clubs-and-organizations/pre-vet-society/

The primary objectives of the The Pre-Veterinary Society are to: promote a deeper understanding of the numerous opportunities in veterinary medicine; exchange information on veterinary and animal experiences; and keep students updated on the latest veterinary school information.

What does the The Pre-Veterinary Society do?

- A variety of guest speakers are invited to club meetings to talk about their specialties or field of interest. A sample of topic include wildlife rehabilitation, laboratory animal medicine, exotic pet care and veterinary ethics.
- Each year, faculty from the Virginia-Maryland Regional College of Veterinary Medicine speak to club members about veterinary medical school. Mock interviews are held in January to prepare our club members for the admissions process.
- Club sponsored trips offer our members the ability to tour various veterinary medical facilities and talk to veterinary students and faculty and to visit local zoos and animal care facilities.
- Each year we participate in the APVMA National Symposium which is held at different veterinary schools annually. This is an excellent opportunity to visit a vet school, plus hear over 30 speakers on numerous topics and participate in a variety of wet and dry lab.
- Volunteer with the Prince George's County Animal Shelter in partnership with PetSmart to help find homes for abandoned animals

## Sigma Alpha

http://agnr.umd.edu/student-opportunities/clubs-and-organizations/sigma-alpha-sorority/

Sigma Alpha is a national professional agricultural sorority. The objective of the sorority is to promote its members in all facets of agriculture and to strengthen the friendships among them. Members strive for achievement in scholarship, leadership, service, and to further the development of women pursuing careers in agriculture. Sigma Alpha works to promote agriculture, and women's role, on our campus, in our community and throughout the state. Activities include: attending regional and national conferences/conventions; participating in college events (Fall Bash, ANSC orientation, Cook-Offs); service activities - including teaching agriculture to local elementary students and judging contests for the Maryland FFA; professional Guest speakers, and participating in MD day/Ag day Membership rush is held on a semester basis. To be eligible, potential members must have: 2.25 cumulative GPA, Agriculture major or sincere interest in agriculture, be a member of 1 other group or Enrolled in 18 credits or working 10 hours a week.

## University of Maryland Equestrian Team

Equiterps@gmail.com

The University of Maryland Equestrian Team is a sports club that competes in intercollegiate competition through the Intercollegiate Horse Show Association (http://ihsainc.com). Throughout the year we compete against area schools such as Goucher, UMW, American, and many others. Though showing is available to all team members, it is not required.

Our team rides once a week at Oatland Stables in Gaithersburg, MD. Additionally, our members have the opportunity to participate in clinics and other horse-related events. Riders ranging from the levels of walk/trot to open jumping (3' courses) are welcome to join our team. Please feel free to send any questions to Equiterps@gmail.com. Also, like our page "Terps Equestrian Team" on Facebook (https://www.facebook.com/pages/Terps-Equestrian-Team/112106182178428/)!

## Scholarships and Financial Assistance

The ANSC program administers several scholarships, including:

American Registry of Professional Animal Scientists (ARPAS) Washington, DC Area Chapter Scholarship, Judith E. Brocksmith Pre-Veterinary Scholarship, C.W. England, Tom Hartsock Animal Management Scholarship, the Kinghorne Fund Fellowship, and the Lillian Hildebrandt Rummel Scholarship. For eligibility criteria, visit the ANSC Scholarship page. (https://ansc.umd.edu/undergraduate/current-students/academics-advising/#scholarships)

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Awards and Recognition

ANSC Faculty and students have been the recipients of numerous prestigious awards and honors. To read more about our exceptional community, visit our News (https://ansc.umd.edu/news/) page.

# Animal Sciences Major

ansc-undergrad-prog@umd.edu

**Program Director:** Amy O. Burk, Ph.D.

The Department of Animal and Avian Sciences provides a challenging program for academically talented students interested in the application of biology and technology to the care, management and study of domestic and aquatic animals. In addition to emphasizing the traditional farm species of dairy and beef cattle, sheep, swine and poultry, our program includes options for courses in equine science, animal biotechnology, and sciences which prepare students for veterinary or graduate school. Animal sciences majors explore a wide range of subjects - from fundamental biology to animal nutrition, physiology and genetics - while integrating science and economics into animal management. Courses offered by this department may be found under the following acronym: ANSC.

Our department offers B.S., M.S., and Ph.D. degrees. Many students in our Science/Pre-Professional option choose to continue their education in a variety of professional schools, ranging from veterinary school and MS/PhD graduate programs to things like human medical school or higher education. Our graduates also pursue industry and hands-on careers, such as research technicians, animal care specialists, sales or marketing representatives, and animal producers.

## Admission to the Major

The Animal Science curriculum for all options is a rigorous and science-based programs. Students receive a solid foundation in basic biological sciences and ANSC courses are largely taught on a comparative basis, where students can then apply the knowledge they gain to a variety of species and situations.

## Program Objectives

The Department of Animal and Avian Sciences was formed in 1997 through the merger of the Animal Science, Dairy Science and Poultry Science Departments. Animal science is the study of domesticated animals used for food, fiber, work, biomedical research, and leisure. Our department fulfills a tripartite mission of research, teaching, and extension.

## Program Learning Outcomes

Graduates of the ANSC undergraduate program will be able to:

1. Animal husbandry requirements- Graduates of the ANSC undergraduate program will be able to apply animal science knowledge and research to the creation of rational, feasible, and legal animal management programs that take into consideration appropriate nutrition, husbandry, health, reproduction, and welfare considerations.
2. Safely handle animals- Graduates of the ANSC undergraduate program will be able to safely approach, restrain, and move horses, sheep, dairy cows, pigs, chickens and other species specific to their curricula.
3. Animal Science literacy- Graduates of the ANSC undergraduate program will be able to select, understand, and critically evaluate scientific studies in animal sciences disciplines such that they employ research that is applicable, timely, accurate, and useful for their animal care and management needs.
4. Knowledge of major issues in ANSC- Graduates of the animal sciences program will be well-versed in the issues related to animal agriculture such that they contribute to societal debates around the future of farming, the use of antibiotics in animal agriculture, sustainability of our animal farms, animal welfare, farm worker needs, and scaling agricultural enterprises up and down to meet our growing population's protein needs.
5. Careers and opportunities in ANSC- Graduates of the ANSC undergraduate program will be able to describe at least five career options available to them with the knowledge, skills, and experience they receive as undergraduates and identify specific job opportunities that match their abilities, experience, and interests.
6. Animal structure and function- Graduates of the ANSC undergraduate program will be able to correctly apply their knowledge of anatomy and physiology of domestic animals to explain normal homeostatic functioning of program-specific domestic species at the organismal, tissue, cellular, and molecular levels. Students will be able to adapt that knowledge to address abnormalities in at least one body system.
7. Communication- Graduates of the ANSC program will be able to communicate effectively with the public, producers, and the scientific community through oral, written, and visual means in print and on-line.

## REQUIREMENTS

Animal Sciences prepares students for veterinary school, graduate school, and careers in research, sales and marketing, biotechnology, aquaculture, and animal production. The curricula apply the principles of biology and technology to the care, management, and study of dairy and beef cattle, horses, fish, sheep, swine, and poultry. Students complete the Animal Sciences core courses and choose between two broad tracks:

Animal Care and Management, for students interested in going directly into a career, or Sciences/Professional Option to prepare for admission to graduate, veterinary, pharmacy, nursing or medical school. Students can customize their program based on their area of interest (emphasis area (https://ansc.umd.edu/undergraduate/prospective-students/)) by selecting courses from that area to fulfill major requirements.

Students pursuing the major should review the academic benchmarks established for this program. See http://4yearplans.umd.edu or visit the ANSC Program Requirements (https://ansc.umd.edu/undergraduate/current-students/academics-advising/) website. Students will be periodically reviewed to ensure they are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

**Please note:** there is a $50 per course fee for Animal Science Laboratory courses.

*All undergraduates majoring in Animal Sciences must complete the following course requirements:*

| Course | Title | Credits |
|---|---|---|
| **Animal Sciences Core** | | |
| ANSC101 & ANSC103 | Principles of Animal Science and Principles of Animal Science Laboratory | 4 |
| ANSC201 | (Anatomy and Physiology of Domestic Animals) | 4 |
| ANSC314 | Comparative Animal Nutrition | 3 |
| ANSC315 | Applied Animal Nutrition | 3 |
| ANSC401 | Animal Growth and Development for Production Agriculture | 3 |
| BSCI160 & BSCI161 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab | 4 |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | 4 |
| BSCI223 | General Microbiology | 4 |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | 4 |
| AREC250 | Elements of Agricultural and Resource Economics | 3 |
| or ECON200 | Principles of Microeconomics | |
| BIOM301 | Introduction to Biometrics | 3 |
| **Select one of the following specializations:** | | **31-36** |
| Animal Care and Management | | |
| Sciences & Combined AG and Vet Sci | | |
| **Total Credits** | | **70-75** |

# Specializations:
# Animal Care and Management

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| ANSC327 | Molecular and Quantitative Animal Genetics | 3 |
| or ANSC450 | Animal Breeding Plans | |
| ANSC446 & ANSC447 | Physiology of Mammalian Reproduction and Physiology of Mammalian Reproduction Laboratory | 4 |
| AREC306 | Farm Management and Sustainable Food Production | 3 |
| or ANSC270 | Animal Enterprise Management | |
| or INAG204 | Agricultural Business Management | |
| CHEM231 | Organic Chemistry I | 3 |
| or PLSC275 | | |
| or AGST275 | Fundamentals of Agricultural and Environmental Chemistry | |
| ANSC359 | Internship Experience in Animal and Avian Sciences | 3-6 |
| **Advanced ANSC Electives** | | |
| Select 9 credits of the following: | | 9 |
| ANSC330 | Equine Science | |
| ANSC340 | Health Management of Animal Populations | |
| ANSC410 | The Gut Microbiome and its Roles in Health and Disease | |
| ANSC417 | Regulatory Issues in Animal Care and Management | |
| ANSC435 | Experimental Embryology | |
| ANSC437 | Animal Biotechnology | |
| ANSC440 | Zoonotic Diseases and Control | |
| ANSC443 | Physiology of Lactation | |
| ANSC444 | Domestic Animal Endocrinology | |
| ANSC450 | Animal Breeding Plans | |
| ANSC452 | Avian Physiology | |
| ANSC453 | Animal Welfare and Bioethics | |
| ANSC455 | Applied Animal Behavior | |
| ANSC460 | Comparative Vertebrate Immunology | |
| ANSC497 | Animal Biotechnology Recombinant DNA Laboratory | |
| **Management Courses** | | |
| Select 9 credits of the following: | | 9 |
| ANSC220 | Livestock Management | |
| ANSC232 | Horse Management | |
| ANSC237 | Equine Reproductive Management | |
| ANSC242 | Dairy Cattle Management | |
| ANSC245 | Sheep Management | |
| ANSC246 | Beef Management | |
| ANSC250 | Companion Animal Care and Management | |
| ANSC255 | Introduction to Aquaculture | |
| ANSC260 | Laboratory Animal Management | |
| ANSC262 | Commercial Poultry Management | |
| ANSC282 | Grazing Animal Management | |
| **Total Credits** | | **34-37** |

# Science/Professional & Combined Ag-Veterinary Medicine

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| ANSC327 | Molecular and Quantitative Animal Genetics | 3 |
| BCHM463 | Biochemistry of Physiology | 3-4 |
| or BSCI330 | Cell Biology and Physiology | |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | 4 |

| | | |
|---|---|---|
| CHEM241 & CHEM242 | Organic Chemistry II and Organic Chemistry Laboratory II | 4 |
| CHEM271 & CHEM272 | General Chemistry and Energetics and General Bioanalytical Chemistry Laboratory | 4 |
| PHYS121 | Fundamentals of Physics I | 4 |
| or PHYS131 | Fundamentals of Physics for Life Sciences I | |
| PHYS122 | Fundamentals of Physics II | 4 |
| or PHYS132 | Fundamentals of Physics for Life Sciences II | |
| **Advanced ANSC Electives** | | |
| Select 9 credits of the following: | | 9 |
| ANSC330 | Equine Science | |
| ANSC340 | Health Management of Animal Populations | |
| ANSC359 | Internship Experience in Animal and Avian Sciences | |
| ANSC410 | The Gut Microbiome and its Roles in Health and Disease | |
| ANSC417 | Regulatory Issues in Animal Care and Management | |
| ANSC435 | Experimental Embryology | |
| ANSC437 | Animal Biotechnology | |
| ANSC440 | Zoonotic Diseases and Control | |
| ANSC443 | Physiology of Lactation | |
| ANSC444 | Domestic Animal Endocrinology | |
| ANSC446 | Physiology of Mammalian Reproduction | |
| ANSC447 | Physiology of Mammalian Reproduction Laboratory | |
| ANSC450 | Animal Breeding Plans | |
| ANSC452 | Avian Physiology | |
| ANSC453 | Animal Welfare and Bioethics | |
| ANSC455 | Applied Animal Behavior | |
| ANSC460 | Comparative Vertebrate Immunology | |
| ANSC497 | Animal Biotechnology Recombinant DNA Laboratory | |
| **Management Courses** | | |
| Select 3 credits of the following: | | 3 |
| ANSC220 | Livestock Management | |
| ANSC232 | Horse Management | |
| ANSC237 | Equine Reproductive Management | |
| ANSC242 | Dairy Cattle Management | |
| ANSC245 | Sheep Management | |
| ANSC246 | Beef Management | |
| ANSC250 | Companion Animal Care and Management | |
| ANSC255 | Introduction to Aquaculture | |
| ANSC260 | Laboratory Animal Management | |
| ANSC262 | Commercial Poultry Management | |
| ANSC282 | Grazing Animal Management | |
| **Total Credits** | | **38-39** |

**A complete listing of all currently approved Management and Advanced ANSC Elective courses is available from our* ANSC Course Listing *(*https://ansc.umd.edu/undergraduate/current-students/academics-advising/courses/*) page.*

# Other Requirements for the Major

Animal sciences majors select one of two options to guide their coursework. Program requirements (https://ansc.umd.edu/undergraduate/program-overview/) for all options are available on our website, along with a list of all ANSC courses (https://ansc.umd.edu/undergraduate/current-students/courses/) and when they are offered.

**Animal Care & Management (0104A)** - Is designed for students whose career plans include animal management, production and the marketing of animal products. The curriculum provides basic courses in genetics, nutrition, physiology and reproduction while allowing students to focus on the management of one particular livestock species. You are required to supplement academic work with practical experience by completing an internship. Dairy science students, for example, intern at local farms where they participate in decisions about breeding, feeding, health practices, milk production and other aspects of herd management. This option will prepare you for ownership or management positions with dairy, livestock or poultry production enterprises; positions with marketing and processing organizations; breed associations; and positions in agribusiness fields such as sales of feed, pharmaceutical products and agricultural equipment. Graduates also work with state and federal agencies.

**Science/Professional (0104E)** - Prepares students for admission to veterinary, medical, and/or graduate school. Graduate study can open the door to an exciting research career in specialty areas of animal or biological sciences such as genetics, nutrition, physiology or cell biology. The curriculum emphasizes advanced courses in the biological and physical sciences and includes all the pre-veterinary and pre-medicine requirements.

**Combined Ag & Vet Sci (1299D)** - A combined degree program available to students who gain admission to veterinary school prior to completing their bachelor's degree. College of Agriculture and Natural Resources students who have completed at least ninety hours, including all college and university requirements, are awarded a bachelor of science degree upon successful completion of at least thirty semester hours at any accredited veterinary college. Early planning with your advisor is encouraged if you choose this option.

Minimum Grade Policy:

ANSC has a minimum grade policy which states that **ANSC students must earn a "C-" or better in all major required courses, including ANSC courses and required supporting courses in other departments.** Students must also have both a cumulative GPA of at least a 2.0 and a 2.0 cumulative GPA in all major requirements in order to graduate. More information on this policy is available on the ANSC Minimum Grade Policy (https://ansc.umd.edu/undergraduate/current-students/academics-advising/#policies) page.

# GRADUATION PLANS

Click here (https://agnr.umd.edu/academics/advising/four-year-plans/) for roadmaps for graduation plans in the College of Agricultural and Natural Resources.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Applied Agriculture Certificate

**College of Agriculture and Natural Resources**
Institute of Applied Agriculture
2123 Jull Hall
Phone: 301-405-4685
iaa-request@umd.edu
http://iaa.umd.edu

**Interim Director:** Heather McHale

Through the Institute of Applied Agriculture (IAA) students earn a UMD lower-division certificate in Applied Agriculture. Students may select one of the following concentration tracks: Agricultural Business Management, Agricultural Leadership and Communication, Environmental Stewardship, General Turfgrass Management, Golf Course Management, Landscape Management, Ornamental Horticulture, Sports Turf Management, and Sustainable Agriculture. The IAA provides students with the entrepreneurial and technical skills needed to lead successful agricultural enterprises and manage natural resources responsibly. Upon completion of the program, some students join the workforce, while others pursue further education. Students who wish to earn a bachelor's degree may apply to transfer into University of Maryland undergraduate degree programs.

The IAA has a separate admission policy (http://iaa.umd.edu/prospective-students/admissions/) which can be found on its website; prospective students apply directly to the IAA.

Agriculture Forward (https://iaa.umd.edu/agriculture-forward/**) at the University of Maryland** (Ag Forward) is an accelerated program for first-time university students who are interested in earning dual credentials from the University of Maryland, College Park. Students begin their studies in the Institute of Applied Agriculture (IAA). After successfully completing 30 credits at the IAA, completing General Education requirements in English and Math and earning a GPA of at least 3.0, students are eligible to transfer into a bachelor's degree program within the College of Agriculture and Natural Resources. Students continue to earn their Certificate in Applied Agriculture while working on their bachelor's degree. Applications for Agriculture Forward, a competitive program, are accepted each spring until March 15.

## Program Learning Outcomes

1. Demonstrate the ability to communicate clearly and appropriately with a range of audiences, both in writing and orally; demonstrate proficiency in professional presentation skills.
2. Analyze, apply, and create financial statements; identify and analyze potential markets; create effective business plans.
3. Demonstrate understanding of plant health care principles and best practices, including integrated pest management strategies.
4. Demonstrate understanding of inequities and cultural biases in the field of agriculture across dimensions such as race, gender, citizenship status, disability status, economic class, and others; display cultural competence and sensitivity in communicating with a variety of stakeholders.

# REQUIREMENTS

**A certificate in Applied Agriculture** requires students to complete 60 credits and a 320-hour internship. Each concentration track requires courses specific to its focus and allows for elective courses so students may pursue their areas of interest. All concentration tracks include the following required elements:

- fundamental studies (math, English, and oral communication)
- fundamental agricultural science (plant, animal, or nutrition)
- applied agriculture and career readiness (soil science; pesticide use and safety; internship; and professional development)
- business management (courses selected from a list that includes agricultural entrepreneurship, marketing, human resources management, finance, business management, alternative enterprises, and business law).

All concentration tracks, aside from Agricultural Leadership and Communication, also require Fundamentals of Agricultural Mechanics. Please see more detailed requirements for each concentration track below. Complete curriculum guides, course descriptions, and two-year plans may be found on our website at go.umd.edu/program-plans (http://go.umd.edu/program-plans/).

## Agricultural Business Management

| Course | Title | Credits |
|---|---|---|
| **Fundamental Studies** | | |
| ENGL101 | Academic Writing | 3 |
| INAG110 | Oral Communication | 3 |
| MATH113 | College Algebra and Trigonometry (Or INAG 104, Agricultural Mathematics, or other math course) | 3 |
| **Fundamental Agricultural Science** | | |
| INAG100 | Introduction to Plant Science | 4 |
| or PLSC110/11 | Introduction to Horticulture | |
| or PLSC112/11 | Introductory Crop Science | |
| or ANSC101 & ANSC103 | Principles of Animal Science and Principles of Animal Science Laboratory | |
| or NFSC100 | Elements of Nutrition | |
| **Applied Agriculture** | | |
| INAG105 | Soils and Fertilizers | 3 |
| INAG106 | Pesticide Use and Safety | 2 |
| INAG250 | Fundamentals of Agricultural Mechanics | 3 |
| INAG288 | Internship | 1 |
| INAG289 | Internship Experience & Professional Development | 3 |
| **Business Management** | | |
| INAG102 | Agricultural Entrepreneurship | 3 |
| INAG103 | Agricultural Marketing | 3 |
| INAG201 | Agricultural Human Resources Management | 3 |
| INAG203 | Agricultural Finance | 3 |
| INAG204 | Agricultural Business Management | 3 |
| INAG206 | Agricultural Business Law | 3 |
| **Applied Agriculture Electives** | | |
| Student will choose 17-18 credits of advisor-approved electives to complete a total of 60 credits for the certificate. | | 17 |
| **Total Credits** | | **60** |

# Agricultural Leadership and Communication

| Course | Title | Credits |
|---|---|---|
| **Fundamental Studies** | | |
| MATH113 | College Algebra and Trigonometry (Or INAG 104, Agricultural Mathematics, or other math course) | 3 |
| ENGL101 | Academic Writing | 3 |
| INAG110 | Oral Communication | 3 |
| **Fundamental Agricultural Science** | | |
| INAG100 | Introduction to Plant Science | 4 |
| or PLSC110/11 | Introduction to Horticulture | |
| or PLSC112/11 | Introductory Crop Science | |
| or ANSC101 & ANSC103 | Principles of Animal Science and Principles of Animal Science Laboratory | |
| or NFSC112 | Food: Science and Technology | |
| **Applied Agriculture** | | |
| INAG105 | Soils and Fertilizers (Students pursuing nutrition-related careers may substitute NFSC100 for INAG105) | 3 |
| INAG288 | Internship | 1 |
| INAG289 | Internship Experience & Professional Development | 3 |
| **Business Management** | | |
| INAG103 | Agricultural Marketing | 3 |
| Business Management Restricted Electives | | 9 |
| Choose three of the following courses: | | |
| INAG102 | Agricultural Entrepreneurship | |
| INAG201 | Agricultural Human Resources Management | |
| INAG203 | Agricultural Finance | |
| INAG204 | Agricultural Business Management | |
| INAG206 | Agricultural Business Law | |
| **Concentration Requirements** | | |
| INAG131 | Introduction to Agricultural Policy and Communication | 3 |
| INAG132 | Agricultural Leadership and Teamwork | 3 |
| INAG252 | Agricultural Public Relations | 3 |
| INAG253 | Agricultural Strategic Communication | 3 |
| **Applied Agriculture Electives** | | |
| Student will choose 16-17 credits of advisor-approved electives to complete their 60 credits. | | 16 |
| **Total Credits** | | **60** |

# Sustainable Agriculture

| Course | Title | Credits |
|---|---|---|
| **Fundamental Studies** | | |
| ENGL101 | Academic Writing | 3 |
| INAG110 | Oral Communication | 3 |
| MATH113 | College Algebra and Trigonometry (Or INAG 104, Agricultural Mathematics, or other math course) | 3 |
| **Fundamental Agricultural Science** | | |
| INAG100 | Introduction to Plant Science | 4 |
| or PLSC110/11 | Introduction to Horticulture | |
| or PLSC112/11 | Introductory Crop Science | |
| or ANSC101 & ANSC103 | Principles of Animal Science and Principles of Animal Science Laboratory | |
| **Applied Agriculture** | | |
| INAG105 | Soils and Fertilizers | 3 |
| INAG106 | Pesticide Use and Safety | 2 |
| INAG123 | People, Planet, and Profit: Digging Into Sustainable Agriculture | 3 |
| INAG248 | Topics in Sustainable Agriculture | 1 |
| INAG250 | Fundamentals of Agricultural Mechanics | 3 |
| INAG288 | Internship | 1 |
| INAG289 | Internship Experience & Professional Development | 3 |
| **Business Management** | | |
| INAG102 | Agricultural Entrepreneurship | 3 |
| INAG103 | Agricultural Marketing | 3 |
| INAG201 | Agricultural Human Resources Management | 3 |
| INAG203 | Agricultural Finance | 3 |
| INAG204 | Agricultural Business Management | 3 |
| INAG206 | Agricultural Business Law | 3 |
| **Electives** | | |
| Student will choose 13-14 credits of advisor-approved electives to complete the 60 credits for the certificate. Sustainable Agriculture students may choose to take INAG 099, Cooperative Education, in lieu of the electives; consult an advisor for details. | | 13 |
| **Total Credits** | | **60** |

# Environmental Stewardship

| Course | Title | Credits |
|---|---|---|
| **Fundamental Studies** | | |
| INAG110 | Oral Communication | 3 |
| MATH113 | College Algebra and Trigonometry (or other math course) | 3 |
| or INAG104 | | |
| ENGL101 | Academic Writing | 3 |
| **Fundamental Agricultural Science** | | |
| INAG100 | Introduction to Plant Science | 4 |
| **Applied Agriculture** | | |
| INAG105 | Soils and Fertilizers | 3 |
| INAG106 | Pesticide Use and Safety | 2 |
| INAG123 | People, Planet, and Profit: Digging Into Sustainable Agriculture | 3 |
| INAG231 | Insects of Ornamentals and Turf | 3 |
| INAG250 | Fundamentals of Agricultural Mechanics | 3 |
| INAG272 | Principles of Arboriculture | 3 |
| INAG288 | Internship | 1 |
| INAG289 | Internship Experience & Professional Development | 3 |
| **Business and Leadership** | | **9** |
| Choose three of the following courses: | | |
| INAG102 | Agricultural Entrepreneurship | |
| INAG103 | Agricultural Marketing | |
| INAG131 | Introduction to Agricultural Policy and Communication | |
| INAG132 | Agricultural Leadership and Teamwork | |
| INAG201 | Agricultural Human Resources Management | |

| | | |
|---|---|---|
| INAG203 | Agricultural Finance | |
| INAG204 | Agricultural Business Management | |
| INAG206 | Agricultural Business Law | |
| **Restricted Electives** [1] | | **17** |
| Student will choose at least 17 credits of advisor-approved electives. | | |
| **Total Credits** | | **60** |

[1] Other courses relevant to the student's course of study may be substituted with advisor approval.

# Landscape Management

| Course | Title | Credits |
|---|---|---|
| **Fundamental Studies** | | |
| ENGL101 | Academic Writing | 3 |
| INAG110 | Oral Communication | 3 |
| MATH113 | College Algebra and Trigonometry (Or INAG 104, Agricultural Mathematics, or other math course) | 3 |
| **Fundamental Agricultural Science** | | |
| INAG100 | Introduction to Plant Science | 4 |
| or PLSC110/11 | Introduction to Horticulture | |
| **Applied Agriculture** | | |
| INAG105 | Soils and Fertilizers | 3 |
| INAG106 | Pesticide Use and Safety | 2 |
| LARC160 | Introduction to Landscape Architecture and Environmental Design | 3 |
| PLSC205 | Introduction to Turf Science and Management | 4 |
| INAG226 | Diseases of Ornamentals and Turf | 3 |
| INAG231 | Insects of Ornamentals and Turf | 3 |
| INAG244 | Herbaceous Plants | 3 |
| PLSC272 | Principles of Arboriculture | 3 |
| PLSC253 | Woody Plants for Mid-Atlantic Landscapes I | 3 |
| INAG250 | Fundamentals of Agricultural Mechanics | 3 |
| INAG251 | Landscape Construction | 3 |
| INAG288 | Internship | 1 |
| INAG289 | Internship Experience & Professional Development | 3 |
| **Business Management** | | |
| INAG201 | Agricultural Human Resources Management | 3 |
| INAG204 | Agricultural Business Management | 3 |
| INAG206 | Agricultural Business Law | 3 |
| **Electives** | | |
| Student will choose 1 or more credits of electives to complete 60 credits of coursework. | | 1 |
| **Total Credits** | | **60** |

# Ornamental Horticulture

| Course | Title | Credits |
|---|---|---|
| **Fundamental Studies** | | |
| ENGL101 | Academic Writing | 3 |
| INAG110 | Oral Communication | 3 |
| MATH113 | College Algebra and Trigonometry (Or INAG 104, Agricultural Mathematics, or other math course) | 3 |
| **Fundamental Agricultural Science** | | |
| INAG100 | Introduction to Plant Science | 4 |
| or PLSC110/11 | Introduction to Horticulture | |
| **Applied Agriculture** | | |
| INAG105 | Soils and Fertilizers | 3 |
| INAG106 | Pesticide Use and Safety | 2 |
| INAG224 | Greenhouse and Plant Production Management | 3 |
| INAG226 | Diseases of Ornamentals and Turf | 3 |
| INAG231 | Insects of Ornamentals and Turf | 3 |
| INAG250 | Fundamentals of Agricultural Mechanics | 3 |
| INAG288 | Internship | 1 |
| INAG289 | Internship Experience & Professional Development | 3 |
| PLSC253 | Woody Plants for Mid-Atlantic Landscapes I | 3 |
| **Business Management** | | |
| INAG102 | Agricultural Entrepreneurship | 3 |
| INAG201 | Agricultural Human Resources Management | 3 |
| INAG204 | Agricultural Business Management | 3 |
| INAG206 | Agricultural Business Law | 3 |
| **Electives** | | |
| Student will choose 11 credits of advisor-approved electives to total 60 credits for the certificate. | | 11 |
| **Total Credits** | | **60** |

# Golf Course Management

| Course | Title | Credits |
|---|---|---|
| **Fundamental Studies** | | |
| ENGL101 | Academic Writing | 3 |
| INAG110 | Oral Communication | 3 |
| MATH113 | College Algebra and Trigonometry (Or INAG 104, Agricultural Mathematics, or other math course) | 3 |
| **Fundamental Agricultural Science** | | |
| INAG100 | Introduction to Plant Science | 4 |
| PLSC205 | Introduction to Turf Science and Management | 4 |
| **Applied Agriculture** | | |
| INAG105 | Soils and Fertilizers | 3 |
| INAG106 | Pesticide Use and Safety | 2 |
| INAG207 | Power and Machinery | 3 |
| INAG214 | Agronomic Principles of Golf Turf Management | 3 |
| INAG226 | Diseases of Ornamentals and Turf | 3 |
| INAG231 | Insects of Ornamentals and Turf | 3 |
| INAG235 | Irrigation and Drainage | 3 |
| INAG237 | GPS & Drone Applications in Surveying | 3 |
| INAG250 | Fundamentals of Agricultural Mechanics | 3 |
| INAG242 | Golf Course Design and Construction | 3 |
| or PLSC253 | Woody Plants for Mid-Atlantic Landscapes I | |
| INAG288 | Internship | 1 |
| INAG289 | Internship Experience & Professional Development | 3 |
| **Business Management** | | |
| INAG201 | Agricultural Human Resources Management | 3 |
| INAG206 | Agricultural Business Law | 3 |
| INAG215 | Business Management Principles for Turf Facilities | 3 |
| **Electives** | | |

| | |
|---|---|
| Student will choose at least 1 credit of electives to complete 60 credits of coursework. | 1 |
| **Total Credits** | **60** |

## Sports Turf Management

| Course | Title | Credits |
|---|---|---|
| **Fundamental Studies** | | |
| ENGL101 | Academic Writing | 3 |
| INAG110 | Oral Communication | 3 |
| MATH113 | College Algebra and Trigonometry (Or INAG 104, Agricultural Mathematics, or other math course) | 3 |
| **Fundamental Agricultural Science** | | |
| INAG100 | Introduction to Plant Science | 4 |
| PLSC205 | Introduction to Turf Science and Management | 4 |
| **Applied Agriculture** | | |
| INAG105 | Soils and Fertilizers | 3 |
| INAG106 | Pesticide Use and Safety | 2 |
| INAG207 | Power and Machinery | 3 |
| INAG214 | Agronomic Principles of Golf Turf Management | 3 |
| INAG226 | Diseases of Ornamentals and Turf | 3 |
| INAG231 | Insects of Ornamentals and Turf | 3 |
| INAG235 | Irrigation and Drainage | 3 |
| INAG237 | GPS & Drone Applications in Surveying | 3 |
| INAG250 | Fundamentals of Agricultural Mechanics | 3 |
| INAG288 | Internship | 1 |
| INAG289 | Internship Experience & Professional Development | 3 |
| **Business Management** | | |
| INAG102 | Agricultural Entrepreneurship | 3 |
| INAG201 | Agricultural Human Resources Management | 3 |
| INAG206 | Agricultural Business Law | 3 |
| INAG215 | Business Management Principles for Turf Facilities | 3 |
| **Electives** | | |
| Student will choose at least 1 credits of advisor-approved electives to reach 60 credit hours for the certificate. | | 1 |
| **Total Credits** | | **60** |

## General Turfgrass Management

| Course | Title | Credits |
|---|---|---|
| **Fundamental Studies** | | |
| ENGL101 | Academic Writing | 3 |
| INAG110 | Oral Communication | 3 |
| MATH113 | College Algebra and Trigonometry (Or INAG 104, Agricultural Mathematics, or other math course) | 3 |
| **Fundamental Agricultural Science** | | |
| INAG100 | Introduction to Plant Science | 4 |
| PLSC205 | Introduction to Turf Science and Management | 4 |
| **Applied Agriculture** | | |
| INAG105 | Soils and Fertilizers | 3 |
| INAG106 | Pesticide Use and Safety | 2 |
| INAG207 | Power and Machinery | 3 |
| INAG235 | Irrigation and Drainage | 3 |
| INAG237 | GPS & Drone Applications in Surveying | 3 |
| INAG250 | Fundamentals of Agricultural Mechanics | 3 |
| INAG288 | Internship | 1 |
| INAG289 | Internship Experience & Professional Development | 3 |
| **Business Management** | | |
| INAG102 | Agricultural Entrepreneurship | 3 |
| INAG201 | Agricultural Human Resources Management | 3 |
| INAG204 | Agricultural Business Management | 3 |
| INAG206 | Agricultural Business Law | 3 |
| **Electives** | | |
| Student will choose 10 credits of advisor-approved electives to reach 60 credits for the certificate. | | 10 |
| **Total Credits** | | **60** |

# Environmental Science and Policy

**Environmental Science and Policy Program**
0220 Symons Hall
Phone: 301-405-8571
http://ensp.umd.edu

Environmental Science and Policy (ENSP) is a multi-disciplinary undergraduate major co-sponsored by the Colleges of Agriculture and Natural Resources, Behavioral and Social Sciences, Computer, Mathematical, and Natural Sciences, and the School of Public Health. By combining a challenging multi-disciplinary program with practical experience, ENSP students gain an appreciation for the ways science, social systems, and policy interact; and are prepared to take roles in responding to the world's emerging environmental challenges.

## PROGRAMS

### Major

- Environmental Science and Policy Major (p. 110)

### Minor

- Sustainability Studies Minor (AGNR) (p. 115)

## ADVISING

Advising is mandatory for all ENSP students in all areas of concentration, regardless of GPA, concentration, or credit level. We want to help you meet program requirements while achieving your academic and career goals. Refer to the ENSP webpage at http://ensp.umd.edu to find advisor assignments.

## OPPORTUNITIES

### Undergraduate Research Experiences

We encourage all interested students to gain research experience. Many beginning ENSP students gain their first research experience by participating in the Maryland Student Researchers Program, which is coordinated by the Maryland Center for Undergraduate Research. More advanced students gain research experience working with their faculty members; in a field assistantship at the USDA - Beltsville Agricultural Research Center or the US FWS - Patuxent Wildlife Research Refuge; or by participating in an NSF-sponsored Research Experience for Undergraduates (REU). Additionally, highly motivated and capable students are encouraged to enroll in Honors-in-ENSP to pursue a self-

directed, individual project. Details about all of these opportunities are available on our website.

## Internships

Practical experience is an important part of learning. Whether gained by volunteering, clubs, internships, and/or research — all experience contributes to students' professional development, helps determine what they enjoy doing, and makes classwork more meaningful. ENSP maintains an extensive list of internship opportunities on its website (http://ensp.umd.edu) and students receive weekly listserv announcements generated from the Advising Blog (http://enspadvisingnews.blogspot.com). Many of ENSP's concentrations require an internship; and most ENSP students complete at least two such experiences. ENSP students can earn credit for an internship experience via ENSP386. Students should review the ENSP webpage for details on this process.

## Departmental Honors Program

The Honors Program in Environmental Science and Policy provides energetic and capable undergraduates the opportunity to engage in independent study. Interested students must have 45-75 credits at the time of application; a cumulative GPA of 3.25 or higher; and a 3.5 or higher in all courses required for ENSP. Transfer students with equivalent academic records are also encouraged to apply. All students who meet the application requirements are eligible to apply; they need not have been a member of University Honors Program. The research will be conducted under the supervision of a faculty mentor, usually in the student's area of concentration, and will result in an Honors thesis. More information about admission, program requirements, and academic resources is available on the website (http://ensp.umd.edu).

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

The Green Scholarship - awarded to qualified upper-level ENSP students. Applicants must demonstrate academic excellence, an already long-term commitment to environmental science and policy, and the potential for a conservation career that bridges the gap between science and policy. Students will be notified via email and ENSP blog when the application becomes available.

## Student Societies and Professional Organizations

UMD ENSPire: ENSPire is the ENSP Student Advisory board. With representatives from each academic class, ENSPire strives to unite ENSP majors and those with a genuine interest in bettering the environment through academics, professional development, community service, exploration of nature, and social activity.

# Environmental Science and Policy Major

**Program Director:** Mark Carroll, Ph.D.

Environmental Science and Policy is a broadly multi-disciplinary, undergraduate major, drawing courses and faculty from eight departments, three colleges (the Colleges of Agriculture and Natural Resources; Behavioral and Social Sciences; Computer, Mathematical, and Natural Sciences), and one School (the School of Public Health).

New ENSP students begin in the College of Agriculture and Natural Resources, where they will be guided through a structured, exploratory advising process. ENSP students are expected to declare a concentration by the end of their third semester in the program and, once they declare their concentration, will move administratively to the college and department sponsoring the concentration. There, they are advised by a faculty member in their discipline.

The ENSP faculty and staff aspire to provide a strong identity for the students enrolled in this major, and we encourage students to take advantage of the rich resources available at a Research I public university. Experiential learning through research, internships, and study abroad is strongly encouraged.

## Admission to the Major

Incoming students who wish to enter ENSP may do so by selecting ENSP-Undeclared on their application for admission. On-campus students may declare ENSP during a meeting with the Assistant Director. Please review the ENSP website at http://ensp.umd.edu to learn about the program and its requirements prior to your first advising meeting.

## Program Objectives

The curriculum of Environmental Science and Policy comprises an introductory core of lower-level courses in environmental science, environmental policy, biology, chemistry, earth sciences, geography, economics, calculus, and statistics. This is followed by in-depth and focused training in one of eleven areas of concentration in biological resources, earth systems, or the human dimensions of the field; and two upper-level courses in applied science and policy. The educational philosophy of the program is to train students broadly using a multi-disciplinary approach at the introductory level so that they are exposed to the myriad ways there are to learn about environmental systems and to address human-environment issues. This introductory approach precedes the concentration in which the students are prepared for post-graduate study or work in a discipline-based field. The combination of the lower-level core courses and upper-level depth in a concentration prepares graduates to work and study independently or as members of teams in which they will be asked to be experts in one area, while understanding and using effectively other natural and social science knowledge and investigative approaches.

## Program Learning Outcomes

1. Utilize and integrate knowledge and understanding of natural and social sciences.
2. Depth and knowledge in an area of concentration.
3. Readiness for full-time employment and grad school.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **ENSP Core** [1] | | **18-19** |
| ENSP101 | Introduction to Environmental Science | |
| ENSP102 | Introduction to Environmental Policy | |

| | |
|---|---|
| ENSP400 | Capstone in Environmental Science and Policy ((senior standing)) |
| Applied Science and Policy (select one) [2, 3] | |
| ENSP305 | Applied Spatial Analysis in Environmental Science and Policy |
| ENSP306 | Fundamentals of Qualitative Research Methods for Environmental Studies |
| ENSP330 | Introduction to Environmental Law |
| ENSP340 | Water: Science, Ethics, and Policy |
| ENSP342 | Environmental Threats to Oceans and Coasts: Towards an Integrated Policy Response |
| ENSP350 | Energy Resources: Science and Policy in the 21st Century |
| ENSP370 | Principles of Environmental Justice: Theory and Practice |
| Calculus (select one): | |
| MATH120 | Elementary Calculus I |
| MATH136 | Calculus for Life Sciences |
| MATH140 | Calculus I |
| Statistics (select one): | |
| BIOM301 | Introduction to Biometrics |
| SOCY201 | Introductory Statistics for Sociology |
| PSYC200 | Statistical Methods in Psychology |
| GEOG306 | Introduction to Quantitative Methods for the Geographical Environmental Sciences |
| ECON321 | Economic Statistics |
| Select at least one course each from four of the five groups: | 12-14 |
| Group 1- Biology: | |
| BSCI160 & BSCI161 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab |
| Group 2 - Chemistry: | |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory |
| Group 3 - Earth Sciences: | |
| AOSC200 & AOSC201 | Weather and Climate and Weather and Climate Laboratory |
| ENST200 | Fundamentals of Soil Science |
| GEOG201 & GEOG211 | Geography of Environmental Systems and Geography of Environmental Systems Laboratory |
| GEOL100 & GEOL110 | Physical Geology and Physical Geology Laboratory |
| GEOL120 & GEOL110 | Environmental Geology and Physical Geology Laboratory |
| Group 4 - Economics: | |
| AREC240 | Introduction to Economics and the Environment |
| AREC241 | Environment, Economics and Policy |
| ECON200 | Principles of Microeconomics |
| Group 5 - Geography: | |
| GEOG130 | Development Geography: Environmental & Social Justice |
| GEOG140 | Natural Disasters: Earthquakes, Floods, and Fires |
| GEOG170 | Mapping our Digital World |
| GEOG202 | Introduction to Human Geography |
| **Total Credits** | **30-33** |

1 Requirements may vary slightly depending on concentration; please refer to complete list of requirements on http://ensp.umd.edu.
2 To be taken in the junior or senior year
3 Students shall not double-count the Applied Science and Policy requirement with another requirement for their concentration.

**GRADING POLICY:** Students who entered the Environmental Science and Policy Program (ENSP) in Spring 2002, and thereafter, are required to earn grades of "C-" or higher in all courses taken within the ENSP core, in all required courses, and restricted electives of the selected area of concentration.

## Areas of Concentration

Students choose an area of concentration and move administratively to the College and academic department sponsoring the concentration where they receive faculty advising and advanced training and background. See requirements for each Area of Concentration below.

## Environment and Agriculture (AGNR)

| Course | Title | Credits |
|---|---|---|
| **Requirements** | | |
| Fundamentals and Background | | 18-19 |
| ANSC101 & ANSC103 | Principles of Animal Science and Principles of Animal Science Laboratory | |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | |
| BSCI222 | Principles of Genetics | |
| or PLSC203 | Plants, Genes and Biotechnology | |
| CHEM131 & CHEM232 | Chemistry I - Fundamentals of General Chemistry and Organic Chemistry Laboratory I | |
| PLSC112 & PLSC113 | Introductory Crop Science and Introductory Crop Science Laboratory | |
| Cartography, Remote Sensing, and GIS (6 credits) | | 6 |
| GEOG272 | Introduction to Earth Observation Science | |
| GEOG475 | Geographic Visualization and Digital Mapping | |
| GEOG472 | Remote Sensing: Digital Processing and Analysis | |
| GEOG373 | Geographic Information Systems | |
| or ENST415 | Renewable Energy | |
| GEOG473 | Geographic Information Systems and Spatial Analysis | |
| Internship (3 credits) | | |
| ENSP386 | Internship | |
| **Restricted Electives (choose 5 courses in one Area)** [1] | | **15-19** |
| Area 1 - Crop production and plant protection | | |
| Area 2 - Human dimensions | | |
| **Total Credits** | | **39-44** |

1 See ENSP website (https://ensp.umd.edu/students/degree-requirements/) for list of approved electives.

## Environmental Economics (AGNR)

| Course | Title | Credits |
|---|---|---|
| **Economics Foundation - Choose Track 1 or Track 2** | | **13-14** |
| Track 1: Preparation for PhD programs in Economics and quantitative careers that produce economic analysis | | |
| ECON201 | Principles of Macroeconomics | |
| MATH141 | Calculus II | |
| ECON321 | Economic Statistics | |
| or STAT400 | Applied Probability and Statistics I | |
| ECON326 | Intermediate Microeconomic Analysis | |
| Track 2: Preparation for Master's programs in Public Policy, Law, and careers that involve decision-making informed by economic analysis | | |
| ECON201 | Principles of Macroeconomics | |
| ECON230 | Applied Economic Statistics | |
| or BMGT230 | Business Statistics | |
| AREC326 | Intermediate Applied Microeconomics | |
| or ECON326 | Intermediate Microeconomic Analysis | |
| Select one of the following courses: | | |
| MATH121 | Elementary Calculus II (or Equivalent) | |
| ECON424 | Applied Econometrics | |
| AREC422 | Econometric Analysis in Agricultural and Environmental Economics | |
| AREC380 | Data Science for Environmental and Resource Economics | |
| AREC382 | | |
| ENSP305 | Applied Spatial Analysis in Environmental Science and Policy | |
| ENSP306 | Fundamentals of Qualitative Research Methods for Environmental Studies | |
| **Restricted Electives inside Economics (Choose 5 courses from an approved list)** [1] | | **15** |
| **Restricted Electives outside Economics (choose from one Supporting Area below)** [1] | | **12** |
| Area 1- Social science (at least 9 credits must be 300- or 400-level) | | |
| Area 2 - Earth Science | | |
| Area 3 - Life Science (at least 9 credits must be 300- or 400-level) | | |
| Area 4 - Preparation for Graduate Work in Environmental Economics | | |
| **Total Credits** | | **40-41** |

[1] See ENSP website (https://ensp.umd.edu/students/degree-requirements/) for list of approved electives.

## Soil, Water, and Land Resources (AGNR)

| Course | Title | Credits |
|---|---|---|
| **Requirements** | | **18-22** |
| Select one: | | |
| GEOG272 | Introduction to Earth Observation Science | |
| Select one: | | |
| GEOL340 | Geomorphology | |
| GEOG340 | Geomorphology | |
| Select one: | | |
| GEOL451 | Groundwater | |
| GEOL452 | Watershed and Wetland Hydrology | |
| ENST417 | Soil Hydrology and Physics | |
| Select two: | | |
| ENST301<br>& ENST302<br>& ENST303 | Field Soil Morphology I<br>and Field Soil Morphology II<br>and Field Soil Morphology III | |
| ENST415 | Renewable Energy | |
| ENST423 | Soil-Water Pollution | |
| Select two: | | |
| ENST411 | Principles of Soil Fertility | |
| ENST414 | Soil Morphology, Genesis and Classification | |
| ENST417 | Soil Hydrology and Physics | |
| ENST421 | Soil Chemistry | |
| ENST422 | Soil Microbial Ecology | |
| **Restricted Electives (at least 3 courses)** [1] | | **9** |

[1] See ENSP website (https://ensp.umd.edu/students/degree-requirements/) for list of approved electives.

## Wildlife Ecology and Management (AGNR)

| Course | Title | Credits |
|---|---|---|
| **Requirements** | | **29** |
| BSCI170<br>& BSCI171 | Principles of Molecular & Cellular Biology<br>and Principles of Molecular & Cellular Biology Laboratory | |
| ENST214 | Introduction to Natural Resources Management | |
| BSCI222 | Principles of Genetics | |
| CHEM231<br>& CHEM232 | Organic Chemistry I<br>and Organic Chemistry Laboratory I | |
| ENST460 | Principles of Wildlife Management | |
| BSCI361 | Principles of Ecology | |
| PHYS121 | Fundamentals of Physics I (Require) | |
| ENSP305 | Applied Spatial Analysis in Environmental Science and Policy | |
| **Internship/Research** | | **3-6** |
| ENSP386 | Internship | |
| or ENSP499 | Honors Thesis Research | |
| **Restricted Electives - Choose at least 6 courses (3 courses in each Area)** [1] | | **18** |
| Area 1 - Ecological and Taxonomic Dimensions | | |
| Area 2 - Management | | |
| **Total Credits** | | **50-53** |

[1] See ENSP website (https://ensp.umd.edu/students/degree-requirements/) for list of approved electives.

## Culture and Environment (BSOS)

| Course | Title | Credits |
|---|---|---|
| **Requirements** | | **13** |
| ANTH222 | Introduction to Ecological and Evolutionary Anthropology | |
| ANTH322 | Method and Theory in Ecological Anthropology | |
| ANTH240<br>& ANTH340 | Introduction to Archaeology<br>and Method and Theory in Archaeology | |

| | | |
|---|---|---|
| or ANTH260 & ANTH360 | Introduction to Sociocultural Anthropology and Linguistics and Method and Theory in Sociocultural Anthropology | |
| **Restricted Electives in Anthropology (choose at least 4 courses; at least 6 credits must be 300- or 400-level)** [1] | | **12** |
| **Restricted Electives outside Anthropology (including 9 credits from the same academic department)** [1] | | **15** |
| **Applied Field Methods** [1] | | **3-6** |

[1] See ENSP website (https://ensp.umd.edu/students/degree-requirements/) for list of approved courses in this category.

# Environmental Politics and Policy (BSOS)

| Course | Title | Credits |
|---|---|---|
| **Requirements** | | **24** |
| ECON201 | Principles of Macroeconomics | |
| GVPT170 | American Government | |
| GVPT200 | International Political Relations | |
| GVPT280 | The Study of Comparative Politics | |
| GVPT306 | Global Environmental Politics | |
| GVPT417 | Seminar in Advanced Topics in Environmental Policy Analysis | |
| ENSP330 | Introduction to Environmental Law | |
| GVPT course of choice. Must be 200/300/400-level with advisor approval | | |
| **Restricted Electives (6 courses)** [1] | | **18** |

[1] See ENSP website (https://ensp.umd.edu/students/degree-requirements/) for list of approved electives.

# Global Environmental Change (BSOS)

| Course | Title | Credits |
|---|---|---|
| **Requirements** | | |
| Lower Level requirements | | 18-19 |
| GEOL100 | Physical Geology | |
| MATH141 | Calculus II | |
| or MATH121 | Elementary Calculus II | |
| PHYS161 & PHYS174 | General Physics: Mechanics and Particle Dynamics and Physics Laboratory Introduction | |
| or PHYS121 | Fundamentals of Physics I | |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | |
| ENST200 | Fundamentals of Soil Science | |
| or GEOL102 | Historical Geology | |
| Upper Level requirements | | 18-19 |
| BSCI361 | Principles of Ecology | |
| or GEOG342 | | |
| GEOG331 | Introduction to Human Dimensions of Global Change | |
| GEOG301 | Advanced Geographical Environmental Systems | |
| or GEOG345 | | |
| GVPT306 | Global Environmental Politics | |
| or ENSP340 | Water: Science, Ethics, and Policy | |
| or ENSP342 | Environmental Threats to Oceans and Coasts: Towards an Integrated Policy Response | |
| or ENSP350 | Energy Resources: Science and Policy in the 21st Century | |
| GEOG442 | Biogeography and Environmental Change | |
| or AOSC400 | Physical Meteorology | |
| or GEOL437 | Global Climate Change: Past and Present | |
| ENSP386 | Internship | |
| **Techniques & Methods** [1] | | **9** |
| **Restricted Electives - Select 6 credits from one Area and 3 credits from the other** [1] | | **9** |
| Area 1 - Physical and Biological Components | | |
| Area 2 - Human Dimensions | | |

[1] See ENSP website (https://ensp.umd.edu/students/degree-requirements/) for list of approved courses in this category.

# Land Use (BSOS)

| Course | Title | Credits |
|---|---|---|
| **Requirements** | | |
| Lower-level focus: Choose one | | 3-4 |
| GEOG130 | Development Geography: Environmental & Social Justice | |
| GEOG140 | Natural Disasters: Earthquakes, Floods, and Fires | |
| ENST200 | Fundamentals of Soil Science | |
| Techniques and Methods | | 6 |
| GEOG272 | Introduction to Earth Observation Science | |
| GEOG373 | Geographic Information Systems | |
| **Application and Synthesis** | | **6** |
| ENSP386 | Internship | |
| GEOG431 | Culture and Natural Resource Management | |
| **Restricted Electives (students must choose 8 courses, including at least 3 credits from each of the 5 Areas below)** [1] | | **22-24** |
| Area 1 - Social/Cultural Dimensions (choose at least 1 course and 3 credits) | | |
| Area 2 - Technical Skills (choose at least 1 course and 3 credits) | | |
| Area 3 - Regional Dimensions (choose at least 1 course and 3 credits) | | |
| Area 4 - Ecological Dimensions (choose at least 1 course and 3 credits) | | |
| Area 5 - International Dimensions (choose at least 1 course and 3 credits) | | |

[1] See ENSP website (https://ensp.umd.edu/students/degree-requirements/) for list of approved electives.

# Marine and Coastal Management (BSOS)

| Course | Title | Credits |
|---|---|---|
| **Upper Level Requirements** | | **12** |
| AOSC375 | Introduction to the Blue Ocean | |
| or GEOL375 | Introduction to the Blue Ocean | |
| ENSP342 | Environmental Threats to Oceans and Coasts: Towards an Integrated Policy Response | |

| | | |
|---|---|---|
| GEOG441 | The Coastal Ocean | |
| ENST450 | Wetland Ecology | |
| **Technical Requirements** | | **6** |
| GEOG272 | Introduction to Earth Observation Science | |
| GEOG373 | Geographic Information Systems | |
| **Synthesis** | | **6** |
| ENSP386 | Internship | |
| **Restricted Electives--Choose 5 courses. At least 2 courses must be from Area 1, and at least 1 course must be from Area 2:** [1] | | **15** |
| **Area 1 - Costal Science** | | |
| **Area 2 - Management** | | |

[1] See ENSP website (https://ensp.umd.edu/students/degree-requirements/) for list of approved electives.

## Society and Environmental Issues (BSOS)

| Course | Title | Credits |
|---|---|---|
| **Requirements** | | **28** |
| SOCY100 | Introduction to Sociology | |
| or SOCY105 | Understanding Contemporary Social Problems - Frameworks for Critical Thinking and Strategies for Solutions | |
| SOCY202 | Introduction to Research Methods in Sociology | |
| SOCY203 | Sociological Theory | |
| SOCY405 | Scarcity and Modern Society | |
| SOCY441 | Social Stratification and Inequality | |
| Select two: | | |
| SOCY415 | Environmental Sociology | |
| SOCY431 | Principles of Organizations | |
| SOCY498 | Selected Topics in Sociology | |
| Select one: | | |
| SOCY230 | Sociological Social Psychology | |
| SOCY410 | Social Demography | |
| SOCY411 | Demographic Techniques | |
| SOCY412 | Family Demography | |
| SOCY399 | Independent Study in Sociology | |
| ENSP386 | Internship | |
| Select one (GVPT): | | |
| GVPT200 | International Political Relations | |
| GVPT273 | Introduction to Environmental Politics | |
| GVPT306 | Global Environmental Politics | |
| GVPT417 | Seminar in Advanced Topics in Environmental Policy Analysis | |
| **Restricted Electives (at least 9 credits must be at 300- or 400-level):** [1] | | **12** |

[1] See ENSP website (https://ensp.umd.edu/students/degree-requirements/) for list of approved electives.

## Biodiversity and Conservation Biology (CMNS)

| Course | Title | Credits |
|---|---|---|
| **Requirements** | | **32-33** |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | |
| BSCI207 | Principles of Biology III - Organismal Biology | |
| BSCI222 | Principles of Genetics | |
| BSCI361 | Principles of Ecology | |
| BSCI363 | The Biology of Conservation and Extinction | |
| BSCI370 | Principles of Evolution | |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | |
| CHEM241 & CHEM242 | Organic Chemistry II and Organic Chemistry Laboratory II | |
| MATH141 | Calculus II | |
| or MATH121 | Elementary Calculus II | |
| or MATH135 | Discrete Mathematics for Life Sciences | |
| **Restricted Electives (Choose 5 courses from an approved list)** [1] | | **15** |

[1] See ENSP website (https://ensp.umd.edu/students/degree-requirements/) for list of approved electives.

## Environmental Geosciences and Restoration (CMNS)

| Course | Title | Credits |
|---|---|---|
| **Basic Sciences** | | **12** |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | |
| MATH141 | Calculus II | |
| PHYS161 & PHYS174 | General Physics: Mechanics and Particle Dynamics and Physics Laboratory Introduction | |
| or PHYS141 | Principles of Physics | |
| **Upper Level Requirements** | | **17** |
| BSCI361 | Principles of Ecology | |
| GEOL340 | Geomorphology | |
| GEOL451 | Groundwater | |
| or GEOL452 | Watershed and Wetland Hydrology | |
| GEOL453 | Ecosystem Restoration | |
| ENSP386 | Internship | |
| **Areas of Depth (at least 5 classes from an approved list, inlcuding a minimum of 6 credits from each of two Areas, or a minimum of 9 credits in one Area)** [1] | | **15** |
| Area 1. Techniques and Application | | |
| Area 2. Environmental Restoration | | |
| Area 3. Surficial Geology | | |
| Area 4. Deep-Earth Geology | | |

[1] See ENSP website (https://ensp.umd.edu/students/degree-requirements/) for list of approved electives.

# Environmental Justice (SPHL)

| Course | Title | Credits |
|---|---|---|
| **Requirements** | | |
| AASP101 | Public Policy and the Black Community | 3 |
| EPIB301 | Epidemiology for Public Health Practice | 3 |
| ENSP330 | Introduction to Environmental Law | 3 |
| ENSP386 | Internship | 3 |
| or MIEH309 | Environmental Health Research | |
| ENSP370 | Principles of Environmental Justice: Theory and Practice | 3 |
| GEOG373 | Geographic Information Systems | 3 |
| or ENSP305 | Applied Spatial Analysis in Environmental Science and Policy | |
| MIEH300 | A Public Health Perspective: Introduction to Environmental Health | 3 |
| MIEH330 | Environmental Justice, Racism, and Environmental Health Disparities: How where you live can kill you | 3 |
| MIEH331 | The Built Environment, Sustainability, and Public Health: The Good, the Bad, and the Ugly | 3 |
| MIEH400 | Introduction to Global Health | 3 |
| SPHL100 | Foundations of Public Health | 3 |
| URSP250 | The Sustainable City: Exploring Opportunities and Challanges | 3 |
| **Restricted Electives** [1] | | **12** |
| **Total Credits** | | **48** |

[1] See ENSP website (https://ensp.umd.edu/students/degree-requirements/) for list of approved electives.

## GRADUATION PLANS

Click here (https://agnr.umd.edu/academics/advising/four-year-plans/) for roadmaps for graduation plans in the College of Agricultural and Natural Resources.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Sustainability Studies Minor (AGNR)

**Co-sponsored by the College of Agriculture and Natural Resources and the School of Public Policy**
1100 Thurgood Marshall Hall
susminor@umd.edu
http://spp.umd.edu/your-education/undergraduate/minors/#sus/

**Program Directors:** Joanna Goger, J.D. and Thomas C. Hilde, Ph.D.

The study of sustainability examines each generation's commitment to protect and preserve the quality of the natural environment for the benefit of succeeding generations. The stability of natural systems and the environment, economic progress, and promoting social justice are all important sustainability goals. Promoting these goals involves choices among competing ends.

The Sustainability Studies Minor at the University of Maryland provides students the opportunity to learn how human relationships, natural resources, and diverse environments can be understood and used to address creatively and positively the global challenges that will affect future human populations and cultures. It will complement any major on campus and provide both intellectual breadth and depth in a challenging area of inquiry that is gaining a high level of interest in businesses, government agencies, and non-governmental organizations. This minor will provide students with the critical thinking and problem-solving skills necessary for them as citizens, employees, or graduate students.

To apply please: 1) complete the application form (electronically) and email it to susminor@umd.edu and 2) schedule a mandatory advising appointment during advising hours. For more information, please visit our page at http://spp.umd.edu/your-education/undergraduate/minors/#sus/ or email susminor@umd.edu.

## REQUIREMENTS

15 approved credits, at least 9 of which are 300- or 400-level. All courses taken for a minor must be completed with a minimum grade of "C-". A minimum C (2.00) cumulative grade point average across all courses used to satisfy the minor is also required. Notes: No more than 6 credits may overlap between your major and Sustainability Studies, unless otherwise approved by your major. Additionally, courses completed in one minor may not be used to satisfy the requirements in another minor. Students must declare the minor a full academic year before their intended graduation.

| Course | Title | Credits |
|---|---|---|
| AGNR/PLCY301 | Sustainability [1] | 3 |
| Select one course from each of the following groups: [2] | | 9 |
| Science and Technology | | |
| Policy and Institutions | | |
| Social and Human Dimensions | | |
| Select an additional approved course from one of these categories or an approved, credit-bearing experiential learning option for which a grade is earned [3] | | 3 |
| **Total Credits** | | **15** |

[1] This course will introduce you to the normative concepts and new thinking surrounding sustainability. We will use readings, lectures, writing exercises, and small group exercises that address how environmental responsibility, economic health, social equity, and cultural vitality are defined and considered in the sustainability context. The roles of resilience and adaptive management will be examined as key pragmatic dimensions of sustainability and as challenging concepts shaping our environmental ethics today. Guest speakers from the Washington region with research and policy expertise will discuss current policy issues.

[2] See web site for a list of approved courses

[3] These experiences include internships, study abroad trips, and research projects. The experiential learning option must be linked to sustainability and approved in advance.

# Environmental Science and Technology

**Environmental Science and Technology Program**
1428 Animal Sciences Building

Phone: 301-405-1195
http://enst.umd.edu

The Department of Environmental Science and Technology (ENST) is the place for ecological discovery and natural solutions! Our primary mission is to educate students on the fundamentals of environmental science while instilling a deep fascination and intellectual capacity to work in their chosen area of specialization, whether it is Natural Resources Management, Ecological Design, Soil and Watershed Science, or Ecosystem Health. When our students graduate, we want them to be top-notch environmental stewards with a broad framework from which they can advance professionally, personally, and socially.

ENST faculty with expertise in soil science, ecology, and ecological engineering set the stage for unique, relevant, and attractive courses and an academic program that not only trains students to understand environmental systems and issues but also gives them multidisciplinary quantitative design and analytical tools to address complex environmental problems.

# PROGRAMS

## Major

- Environmental Science and Technology Major (p. 116)

## Minor

- Soil Science Minor (p. 120)

# ADVISING

The ENST Department has mandatory advising for each of its concentrations. Students are required to meet with their advisor at least once per semester. Please refer to the ENST web page at http://enst.umd.edu for more information.

# OPPORTUNITIES

## Internships

The ENST curricula consist of a broad set of background courses in environmental science, electives in applications, and upper-level field courses that synthesize the major. Students gain hands-on learning experience during their **required** internship.

## Student Societies and Professional Organizations

**RESTORE**, the ENST student-run club, provides members with the opportunity to participate in educational, service, recreational, and social activities. They gain information that better prepares them for the work force, while making a positive contribution to the field of Environmental Science and Technology as well as the community.

### Certifications & Professional Societies

An important aspect of professional development is earning and maintaining certification in your field. The ENST department strives to provide courses and degrees that prepare you for training programs and certification exams and aid in satisfying other requirements for professional certifications. Some relevant certifications are listed below and details can be found at http://enst.umd.edu. Membership in professional societies is an excellent method to develop a professional network and stay up to date on developments in your field.

- OSHA HAZWOPER (https://www.osha.gov/html/faq-hazwoper.html)
- LEED Certifications (http://usgbc.org/credentials/)
- Soils Field and Laboratory Technician (https://www.wacel.org/technician-certification-program/technician-certification-program-overview/)
- Certified Professional Soil Scientist (https://www.soils.org/certifications/become-certified/)
- Certified Professional Agronomist (https://agronomy.org/certifications/)
- Certified Crop Advisor (https://www.certifiedcropadviser.org/)
- Certified Ecological Designer (https://ser.org/page/CERPApplications/)
- Professional Wetland Scientist (http://www.wetlandcert.org/overview.html)
- Ecologist (http://www.esa.org/esa/?page_id=181)
- Certified Wildlife Biologist (http://wildlife.org/)
- Certified Fisheries Professional (http://fisheries.org/)
- Certified Forester (https://www.eforester.org/Main/Certification_Education/Certified_Forester/Requirements/Main/Certification/Requirements.aspx)
- Certified Natural Resources Manager (https://www.eforester.org/Main/Certification_Education/Certified_Forester/Requirements/Main/Certification/Requirements.aspx)
- Erosion and Sediment Control Certification (https://roads.maryland.gov/mdotsha/pages/Index.aspx?PageId=56)

## Scholarships and Financial Assistance

ENST offers three scholarship opportunities. Juniors enrolled in the Ecological Technology Design concentration are eligible to apply for the ASABE Washington, DC – Maryland Section Scholarships and the Robert L. and Frances C. Green Scholarship. Members of MANNRS are eligible to apply to the Edward R. Landa and Judith A. Johnson Scholarship. Please see the ENST web page at http://enst.umd.edu for additional information.

Additionally, ENST students are encouraged to apply for internships available to them through the College of Agriculture & Natural Resources. More details can be found here: http://agnr.umd.edu/students/scholarships/.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# Environmental Science and Technology Major

**Program Director:** Andrew Baldwin, Ph.D.

The Environmental Science and Technology major prepares students for graduate study and careers focusing on understanding the natural and built environments and resolving environmental problems and concerns for the benefit of humans and ecosystems. Specifically, the program encompasses impacts of human society on the natural environment, the effects of environmental conditions on humans and

ecosystems, science-based management of ecosystems, watershed and soil-related processes related to environmental quality, and designing solutions to sustainably improve environmental quality of air, water, soil, and biological communities. The ENST major is a science- and math-based curriculum leading to a B.S. degree in Environmental Science and Technology with concentrations in Ecological Technology Design, Ecosystem Health, Soil and Watershed Science, or Natural Resources Management. These concentrations share a foundation in science and mathematics, offer specialization through required concentration core courses, and provide flexibility in course selection in concentration depth and technical elective categories. The concentrations are designed to provide students with a fundamental understanding of environmental systems and issues and the multidisciplinary quantitative design and analytical tools necessary to solve complex environmental problems.

For future updates and exciting changes, please visit our website at http://enst.umd.edu.

# Concentrations:

## Ecological Technological Design

The ENST concentration in Ecological Technology Design prepares students for integrating natural systems with the built environment to solve environmental problems while achieving economic, ecological and social sustainability. The science and applications of using natural systems, processes and organisms to address environmental issues has evolved during the last few decades to a mature level whereby there are strong employment opportunities for graduates that are cross-educated in ecology and technology. Examples of ecological technology design applications include restoration of urban and rural streams, creation of wastewater treatment wetlands, design of rain gardens and bioretention systems for low-impact stormwater management, design of eco-industrial parks, life cycle assessment of products for improved environmental performance, bioremediation and phytoremediation of contaminated groundwater, ecological systems for by-product recovery, and filtration of contaminated air with bioreactors. The curriculum consists of a broad set of background courses in environmental science, electives in applications of Ecological Technology Design, and upper-level courses that synthesize the major. Hands-on design experience is included in required internship and practicum courses.

## Ecosystem Health

The ecosystem health concentration is a broad and increasingly important field with wide ranging applications in the environmental science and public health fields. The field encompasses environmental factors and ecosystem functions that affect human health and the effects of human activities on the ecosystem products and services we depend on. Example topics within the field include ecological risk analysis, environmental toxicology, environmental impact assessment, chemical fate and transport, human health risk assessment, industrial hygiene, air quality, environmental microbiology, food safety and security, biodiversity and human health, and children's environmental health. The Ecosystem Health concentration within the Department of Environmental Science and Technology offers a science-based curriculum that includes advanced studies in ecosystem health and environmental protection and the impacts of environmental degradation on human health.

## Natural Resources Management

The goal of the Natural Resources Management concentration is to teach students concepts of the environmentally sound use and management of natural resources. Ecosystems and human societies are linked in complex cycles and relationships between vegetation and wildlife, forests and cities, conservation and development. By learning to participate effectively within these cycles, we will help sustain a harmonious relationship between the environment and human activities. This concentration provides students with the knowledge and skills they need to work in such positions as wildlife biologists, environmental consultants, wetland scientists, forest managers, fisheries biologists, aquatic biologists, and nature interpreters.

## Soil and Watershed Science

The Soil and Watershed Science concentration enables students to understand the complex ways in which aquatic and terrestrial ecosystems are influenced by soil properties and processes and land management decisions. The soil performs such critical ecological functions as supplying and purifying water, recycling wastes, nurturing plants, modifying the atmosphere by emitting or sequestering gases and particulates, providing habitat for the most diverse biological communities on Earth, and serving as a medium for human engineering projects.

The concentration in Soil and Watershed Science in ENST provides students with one of the top soil science programs in the nation. The curriculum prepares graduates for work in variety of careers addressing natural resource and environmental issues and provides a rigorous science background for those planning to pursue post-graduate degrees in environmental sciences, soil science, watershed processes, and related fields. Students graduating from this program will make valuable contributions to society as they pursue challenging careers critical to the protection of the environment. In addition to pursuing advanced degrees, graduates may work in both the private and public sectors performing such services as soil mapping, wetland delineation, land conservation planning, forestry, waste management, farm advising, international development, and consulting in environmental, construction, and landscape architecture areas. Graduates from the Soil and Watershed Science concentration will be qualified to take the national exam to become a Certified Professional Soil Scientist (CPSS).

# Program Learning Outcomes

1. Science and Technology Application. Students will demonstrate the ability to apply natural science principles and technology methods (particularly in ENST), and be able to express scientific questions and findings in the context of relevant socio-environmental dimensions.
2. Quantitative Reasoning. Students will demonstrate the ability to apply basic mathematical and quantitative reasoning in the context of relevant socio-environmental dimensions.
3. Written and Oral Communication. Students will be able to communicate clearly, concisely, and effectively in writing and speech to scientific, management, policy, or general audiences.
4. Information Literacy. Students will demonstrate information literacy skills that they can successfully apply in and outside their disciplines.
5. Technology Fluency. Students will be able to apply technologies to their research and academic efforts in the context of their specific disciplines.
6. Diversity, Equity, Inclusion and Respect (DEIR). Students will be able to apply their scientific and technological research and academic efforts in the context of diversity, equity, inclusion, and respect.

# REQUIREMENTS

This program requires a total of 120 credits for a Bachelor of Science, including the general education program course credits, required major credits; Technology and Ecosystem elective credits, and free elective

credits. All courses counted toward the major must be completed with a C- or better. An overall GPA of 2.0 in major courses is required for graduation.

| Course | Title | Credits |
|---|---|---|
| ENST Core for all Areas of Concentration | | |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | 4 |
| MATH120 | Elementary Calculus I | 3 |
| BSCI160 & BSCI161 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab | 4 |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | 4 |
| ENST200 | Fundamentals of Soil Science | 4 |
| ENST233 | Introduction to Environmental Health | 4 |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | 4 |
| PHYS121 | Fundamentals of Physics I | 4 |
| GEOG306 | Introduction to Quantitative Methods for the Geographical Environmental Sciences | 3 |
| or BIOM301 | Introduction to Biometrics | |
| ENST360 | Ecosystem Ecology | 4 |
| ENST389 | Internship | 3 |
| **Concentration (See list below)** | | **33-36** |
| **Senior Integrative Experience - Choose one course from list below** | | **3** |
| ENST388 | Honors Thesis Research | |
| ENST470 | Ideas into Impact | |
| ENST486 | Senior Professional Experience | |
| ENST472 | Capstone | |
| **Total Credits** | | **77-80** |

# Concentrations: Ecological Technology Design

| Course | Title | Credits |
|---|---|---|
| **Concentration Core** | | |
| ENST281 | Computer Aided Design in Ecology | 2 |
| ENST481 | Ecological Design | 4 |
| MATH121 | Elementary Calculus II | 3 |
| **Concentration Depth - Ecology (2 Courses)** | | **6** |
| ENST410 | Ecosystem Services: An Integrated Analysis | |
| ENST422 | Soil Microbial Ecology | |
| ENST450 | Wetland Ecology | |
| ENST453 | Watershed Science: Water Balance, Open Channel Flow, and Near Surface Hydrology | |
| GEOL453 | Ecosystem Restoration | |
| **Concentration Depth - Design (3 Courses)** | | **9** |
| ENST282 | Ecological Innovation and Entrepreneurship | |
| ENST405 | Energy and Environment | |
| ENST415 | Renewable Energy | |
| ENST443 | | |
| ENST485 | Water Management in Urban Environment | |
| ENST456 | Spatial Analysis and Ecological Sampling | |
| or GEOG272 | Introduction to Earth Observation Science | |
| or GEOG373 | Geographic Information Systems | |
| or INAG237 | GPS & Drone Applications in Surveying | |
| **Ecological Technology Design Technical Electives** [1] | | **12** |
| Urban Ecosystems and Human Dimensions: | | |
| ENST461 | Urban Wildlife Management | |
| GEOG331 | Introduction to Human Dimensions of Global Change | |
| LARC452 | Green Infrastructure and Community Greening | |
| PLSC480 | Urban Ecology | |
| Sustainable Technology: | | |
| ENST432 | Environmental Microbiology | |
| ENST441 | Sustainable Agriculture | |
| GEOL453 | Ecosystem Restoration | |
| INAG250 | Fundamentals of Agricultural Mechanics | |
| PLSC425 | Green Roofs and Urban Sustainability | |
| Wetlands: | | |
| ENST430 | Wetland Soils | |
| ENST450 | Wetland Ecology | |
| ENST452 | Wetland Restoration | |
| GEOL452 | Watershed and Wetland Hydrology | |
| Ecology and Ecosystem Management: | | |
| BSCI467 | Freshwater Biology | |
| ENST373 | Natural History of the Chesapeake Bay | |
| ENST460 | Principles of Wildlife Management | |
| PLSC471 | Forest Ecology | |
| **Total Credits** | | **36** |

# Ecosystem Health

| Course | Title | Credits |
|---|---|---|
| **Concentration Core** | | |
| ENST333 | Ecosystem Health and Protection | 3 |
| ENST334 | Environmental Toxicology | 3 |
| ENST436 | Emerging Environmental Threats | 3 |
| BSCI207 | Principles of Biology III - Organismal Biology | 3 |
| BSCI222 | Principles of Genetics | 4 |
| or BSCI223 | General Microbiology | |
| **Concentration Depth (2 Courses)** | | **6** |
| ENST403 | Invasive Species Ecology | |
| ENST423 | Soil-Water Pollution | |
| ENST432 | Environmental Microbiology | |
| ENST445 | Ecological Risk Assessment | |
| **Ecosystem Health Technical Electives** [1] | | **12** |
| Environmental Health: | | |
| ENST403 | Invasive Species Ecology | |
| ENST423 | Soil-Water Pollution | |
| ENST434 | Toxic Contaminants: Sources, Fate, and Effects | |
| ENST436 | Emerging Environmental Threats | |
| ENST445 | Ecological Risk Assessment | |
| Environmental Science and Management: | | |
| ENST405 | Energy and Environment | |
| GEOG415 | Land Use, Climate Change, and Sustainability | |

| | |
|---|---|
| GEOL452 | Watershed and Wetland Hydrology |
| ENST432 | Environmental Microbiology |
| LARC450 | |
| Ecological Processes: | |
| ENST422 | Soil Microbial Ecology |
| ENST450 | Wetland Ecology |
| ENST460 | Principles of Wildlife Management |
| PLSC400 | Plant Physiology |
| BSCI467 | Freshwater Biology |
| Human Health: | |
| BSCI424 | Pathogenic Microbiology |
| BSCI425 | Advanced Cell Biology Lab Practices |
| BSCI437 | General Virology |
| BSCI450 | Mammalian Systems Physiology |
| Chemistry Depth: | |
| CHEM241 | Organic Chemistry II |
| CHEM242 | Organic Chemistry Laboratory II |
| Cultural or Social Dimensions: | |
| ENST410 | Ecosystem Services: An Integrated Analysis |
| GEOG331 | Introduction to Human Dimensions of Global Change |
| GEOG431 | Culture and Natural Resource Management |
| PLCY301 | Sustainability |
| SOCY405 | Scarcity and Modern Society |
| **Total Credits** | **34** |

# Natural Resources Management

| Course | Title | Credits |
|---|---|---|
| **Concentration Core** | | |
| BSCI222 | Principles of Genetics | 4 |
| ENST214 | Introduction to Natural Resources Management | 3 |
| ENST487 | Environmental Conflicts and Decision Making | 2 |
| **Concentration Depth (4 Courses)** | | **12** |
| ENST456 | Spatial Analysis and Ecological Sampling | |
| or GEOG272 | Introduction to Earth Observation Science | |
| or GEOG373 | Geographic Information Systems | |
| or INAG237 | GPS & Drone Applications in Surveying | |
| ENST450 | Wetland Ecology | |
| or ENST453 | Watershed Science: Water Balance, Open Channel Flow, and Near Surface Hydrology | |
| AREC240 | Introduction to Economics and the Environment | |
| or AREC241 | Environment, Economics and Policy | |
| or ENST410 | Ecosystem Services: An Integrated Analysis | |
| or AREC250 | Elements of Agricultural and Resource Economics | |
| ENST424 | | |
| or ENST430 | Wetland Soils | |
| or ENST441 | Sustainable Agriculture | |
| or ENST462 | Field Techniques in Wildlife Management | |
| or GEOG418 | Field and Laboratory Techniques in Environmental Science | |
| **Natural Resources Management Technical Electives** [1] | | **12** |
| Wildlife: | | |
| ENST460 | Principles of Wildlife Management [2] | |
| ENST461 | Urban Wildlife Management [2] | |
| BSCI334 & BSCI335 | Mammalogy and Mammalogy Laboratory [2] | |
| ENSP102 | Introduction to Environmental Policy [2] | |
| PLSC254 | Woody Plants for Mid-Atlantic Landscape II | |
| ENSP330 | Introduction to Environmental Law [2] | |
| or GVPT273 | Introduction to Environmental Politics | |
| Fisheries: | | |
| ENST314 | [3] | |
| COMM250 | Introduction to Communication Inquiry [3] | |
| COMM382 | Essentials of Intercultural Communication [3] | |
| GEOG331 | Introduction to Human Dimensions of Global Change [3] | |
| GEOG416 | Conceptualizing and Modeling Human-Environmental Interactions [3] | |
| ENSP102 | Introduction to Environmental Policy [3] | |
| ENSP330 | Introduction to Environmental Law [3] | |
| GVPT273 | Introduction to Environmental Politics [3] | |
| Wetlands: | | |
| ENST430 | Wetland Soils [4] | |
| ENST450 | Wetland Ecology [4] | |
| ENST452 | Wetland Restoration [4] | |
| GEOL452 | Watershed and Wetland Hydrology [4] | |
| PLSC489 | Special Topics in Plant Science (PLSC489O Plant Taxonomy) [4] | |
| or PLSC254 | Woody Plants for Mid-Atlantic Landscape II | |
| Forestry: | | |
| PLSC253 | Woody Plants for Mid-Atlantic Landscapes I | |
| PLSC254 | Woody Plants for Mid-Atlantic Landscape II | |
| PLSC400 | Plant Physiology | |
| PLSC471 | Forest Ecology | |
| **Total Credits** | | **33** |

# Soil and Watershed Science

| Course | Title | Credits |
|---|---|---|
| **Concentration Core** | | |
| GEOL100 & GEOL110 | Physical Geology and Physical Geology Laboratory | 4 |
| ENST456 | Spatial Analysis and Ecological Sampling | 3 |
| or GEOG272 | Introduction to Earth Observation Science | |
| or GEOG373 | Geographic Information Systems | |
| or INAG237 | GPS & Drone Applications in Surveying | |
| **Concentration Depth - Soil Sciences** | | **7** |
| ENST411 | Principles of Soil Fertility | |
| ENST414 | Soil Morphology, Genesis and Classification [5] | |
| ENST417 | Soil Hydrology and Physics [5] | |
| ENST421 | Soil Chemistry [5] | |
| ENST422 | Soil Microbial Ecology [5] | |
| **Concentration Depth - Field Experiences** | | **3** |
| ENST301 | Field Soil Morphology I | |
| ENST302 | Field Soil Morphology II | |
| ENST303 | Field Soil Morphology III | |

| | | |
|---|---|---|
| ENST309 | Advanced Field Soil Morphology | |
| ENST424 | | |
| ENST430 | Wetland Soils | |
| ENST441 | Sustainable Agriculture | |
| ENST450 | Wetland Ecology | |
| **Concentration Depth - Systems** | | **6** |
| AREC365 | World Hunger, Population, and Food Supplies | |
| ENST410 | Ecosystem Services: An Integrated Analysis | |
| ENST432 | Environmental Microbiology | |
| PLSC400 | Plant Physiology | |
| **Soil and Watershed Science Technical Electives** [1] | | **12** |
| Agriculture and Sustainable Land Use: | | |
| AREC365 | World Hunger, Population, and Food Supplies | |
| PLSC303 | Global Food Systems | |
| PLSC405 | Agroecology | |
| Social Ecology: | | |
| BSCI223 | General Microbiology | |
| BSCI337 | Biology of Insects | |
| BSCI467 | Freshwater Biology | |
| ENST410 | Ecosystem Services: An Integrated Analysis | |
| Geosciences: | | |
| GEOL322 | Mineralogy | |
| GEOL340 | Geomorphology | |
| GEOL341 | Structural Geology | |
| GEOL342 | Sedimentation and Stratigraphy | |
| GEOL444 | Low Temperature Geochemistry | |
| Watersheds: | | |
| ENST334 | Environmental Toxicology | |
| ENST423 | Soil-Water Pollution | |
| ENST453 | Watershed Science: Water Balance, Open Channel Flow, and Near Surface Hydrology | |
| GEOL451 | Groundwater | |
| GEOL452 | Watershed and Wetland Hydrology | |
| GEOL453 | Ecosystem Restoration | |
| **Total Credits** | | **35** |

1 Any combination of electives can be taken. Courses appear in blocks of related topics to assist students in tailoring their program to particular interests within the concentration. Under some circumstances, other 300 or 400 level electives can be substituted with advisor's approval.

2 Required for Professional Certification as an Associate Wildlife Biologist by The Wildlife Society.

3 Required for Professional Certification as an Associate Fisheries Professional by American Fisheries Society.

4 Required for Professional Certification as a Wetland Professional in Training (WPIT) by The Society of Wetland Scientists Professional Certification Program (SWSPCP).

5 Required for Soil Certification Exam.

# GRADUATION PLANS

Click here (https://agnr.umd.edu/academics/advising/four-year-plans/) for roadmaps for graduation plans in the College of Agricultural and Natural Resources.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Soil Science Minor

**Program Director:** Andrew Baldwin, Ph.D.

The Soil Science minor will provide students with a sophisticated understanding of soil resources, its development, characteristics, and principles for its use and management. Building on a basic introduction to the broad field of soil science, the program is completed by adding four or five upper division soils courses balanced between underlying principles and field applications.

Declared majors in the Conservation of Soil, Water and Environment area of concentration of NRSC or the Land and Water option in ENSP may not also minor in Soil Sciences.

**Advising system for the minor:**
The ENST Department has mandatory advising for each of its major and minor programs. Students are required to meet with their advisor at least once per semester. Please refer to the ENST web page at http://enst.umd.edu for more information.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Core Requirement** | | |
| ENST200 | Fundamentals of Soil Science | 4 |
| **Select 13 credits from Group A and Group B. At least two courses must be from Group A.** | | **13** |
| Group A - Underlying Principles: | | |
| ENST411 | Principles of Soil Fertility | |
| ENST414 | Soil Morphology, Genesis and Classification | |
| ENST417 | Soil Hydrology and Physics | |
| ENST421 | Soil Chemistry | |
| ENST422 | Soil Microbial Ecology | |
| Group B - Applications: | | |
| ENST301 | Field Soil Morphology I | |
| ENST302 | Field Soil Morphology II | |
| ENST303 | Field Soil Morphology III | |
| ENST309 | Advanced Field Soil Morphology | |
| ENST423 | Soil-Water Pollution | |
| ENST430 | Wetland Soils | |
| **Total Credits** | | **17** |

Students attempting this minor will need MATH113 or higher. There are a total of 17 required credits in ENST classes, plus a 4 credit CHEM prerequisite. Depending on the pre-requisites needed, and the optional courses selected and pre-requisites, students will take between 17 and 24 credits.

This minor is particularly relevant to students majoring in Agricultural and Resource Economics, Geology, Geography, Environmental Science and Policy, Biology, Biochemistry, Chemistry, Anthropology, Architecture, Agriculture Science and Technology, Animal Science,

Landscape Architecture, Bioengineering, Civil Engineering, Environmental Engineering, and Plant Science.

# International Agriculture and Natural Resources Certificate

**College of Agriculture and Natural Resources**
0110 Symons Hall
Phone: 301-405-2078
tgallman@umd.edu
http://agnr.umd.edu

The Certificate in International Agriculture and Natural Resources is designed to enrich a student's major with a global perspective. The required courses focus on: language instruction; international aspects of the environment, agricultural production, development and sustainability, nutrition, and business; an experience abroad; and a capstone course regarding the student's travel abroad. Any student in good academic standing may participate in the certificate program.

## REQUIREMENTS

The certificate requires 19-21 credits that may include courses taken toward other degree and general education requirements. Upon successful completion of the courses, with a grade of "C-" or better in each course and a recommendation of the Associate Dean of the College of Agriculture and Natural Resources, a certificate will be awarded. A notation of the award of the certificate will be included on the student's transcript. In order to receive the certificate, students must have completed all requirements for a bachelor's degree. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.0) cumulative grade point average across all courses used to satisfy undergraduate certificate requirements.

| Course | Title | Credits |
|---|---|---|
| **Foreign Language** | | |
| Select 6-8 credits of foreign language | | 6-8 |
| **International Courses** | | |
| Select at least nine credits of the following: [1] | | 9 |
| AREC365 | World Hunger, Population, and Food Supplies | |
| AREC433 | Food and Agricultural Policy | |
| AREC445 | Agricultural Development, Population Growth and the Environment | |
| BMGT390 | Designing Innovative Systems | |
| BMGT392 | Introduction to International Business Management | |
| BSCI365 | | |
| ECON440 | | |
| ENST100 | International Crop Production-Issues and Challenges in the 21st Century | |
| ENST440 | | |
| GEOG422 | Changing Geographies of Sub-Saharan Africa | |
| GEOG434 | | |
| GVPT306 | Global Environmental Politics | |
| NFSC425 | International Nutrition | |
| **Travel Study or Travel Abroad** | | |
| Three to four credits of travel study or study abroad. Prerequisite: to have completed the foreign language course work. Prerequisite or co-requisite: six credits from the International Courses List. In order to qualify for the certificate, travel study and study abroad experiences require prior approval of Associate Dean of the College of Agriculture and Natural Resources. For approval, travel experience must demonstrate significant learning opportunities in areas related to agriculture and natural resources and cultural immersion. | | 3-4 |
| **Travel Study Seminar** | | |
| Travel Study Seminar [2] | | 1 |
| **Total Credits** | | **19-22** |

1. At least 3 of these courses must be in the College of Agriculture and Natural Resources for students not majoring in a program outside of the College of Agriculture and Natural Resources.
2. Prerequisite: completion of the travel study requirement. This course will require student presentation of their travel experience including a paper, a poster presentation, as well as an oral presentation and discussion.

# Nutrition and Food Science

**College of Agriculture and Natural Resources**
0112 Skinner Building
Phone: 301-405-4521
http://nfsc.umd.edu

**Assistant Director, Student Programs:** Sara Kao (sarakao@umd.edu)

The Department of Nutrition and Food Science strives to prepare students for careers in the dynamic and global food industry, public health and community nutrition sectors, health care, or biomedical research.

## PROGRAMS

### Majors

- Fermentation Science Major (p. 122)
- Nutrition and Food Science Major (p. 123)

## ADVISING

Department advising is mandatory each semester. When planning a course of study, students must consult the Undergraduate Catalog for the year they entered the program and also see an appropriate departmental advisor. Information on advising may be obtained by calling the department office, 301-405-8980.

## OPPORTUNITIES

### Student Societies and Professional Organizations

The NFSC Department has two active undergraduate clubs: the Student Dietetic Association (SDA) (formerly known as Food and Nutrition - FAN club) and the Food Science club, which sponsor outreach activities and speakers on career-related topics, and participate in a variety of social activities. Call 301-405-8980 for more information.

# Fermentation Science Major

**Program Director:** Sara Kao, sarakao@umd.edu

In addition to providing competencies for several areas of work, the fermentation science major is designed specifically for certain professional industrial careers including the fermented food, alcoholic beverage and pharmaceutical products.

The Fermentation Science major is concerned with the application of the fundamental principles of the physical, biological, and behavioral sciences and processing to understand the complex and heterogeneous materials recognized as the raw precursors or/and final food products and beverages of fermentation. The fermentation science major prepares students for careers not only in traditional food and alcoholic beverage industries but also the biotechnology fermentation industry for pharmaceutical and nutraceutical production.

## Program Learning Outcomes

1. Careers and opportunities in fermentation science - Graduates of fermentation science undergraduate program will be well prepared for at least four career options in beverage (beer, wine, distilled spirits and kombucha), vegetable foods (kimchi, tempeh and miso), dairy foods (cheese and yogurt) and biotechnology industries (biofuels, pharmaceuticals and nutraceuticals) based upon their UMD fermentation science training, experience and interests.
2. Fermentation science - Graduates of the undergraduate program will be able to apply fermentation science knowledge and research to enhance fermentation process, propagation and modification of fermentation microbes, fermenter design and downstream processing including effluent treatment. Students will demonstrate mastery of the manufacturing steps involved in various fermented products and gain hands-on experience in making these products at pilot scale and evaluate their quality and safety.
3. Fermented food, feed and pharmaceuticals - Graduates of the fermentation science program will be able to correctly apply their knowledge in the use of prokaryotic and eukaryotic microorganisms in the fermentation of dairy, vegetables and fruits, meat, and grains (food), feed, and pharmaceuticals. Students will be able to describe fermenter design and scale-up, fermentation byproducts and downstream processing, and different types of fermentations.
4. Fermentation science literacy - Graduates of the program will be able to select, understand, and critically evaluate scientific studies in fermentation science disciplines such that they employ research that is applicable, timely, accurate, and useful for their fermentation production and management needs.
5. Knowledge of major issues in fermentation science - Graduates of the program will be well-versed in the issues related to fermentation science such that they contribute to societal debates around the future of farming, the use of microbes and phages in fermentation, sustainability of our fermentation industry, the worker needs, and scaling fermentation enterprises up and down to meet our growing population's fermented product needs.

# REQUIREMENTS

Students enrolled in Fermentation Science Major are required to earn a grade of "C-" or better in courses applied toward satisfaction of the major. This includes all the required and elective courses.

Curriculum for the Fermentation Science Major

| Course | Title | Credits |
|---|---|---|
| BSCI170 | Principles of Molecular & Cellular Biology | 3 |
| BSCI171 | Principles of Molecular & Cellular Biology Laboratory | 1 |
| BSCI223 | General Microbiology | 4 |
| CHEM131 | Chemistry I - Fundamentals of General Chemistry | 3 |
| CHEM132 | General Chemistry I Laboratory | 1 |
| CHEM231 | Organic Chemistry I | 3 |
| CHEM232 | Organic Chemistry Laboratory I | 1 |
| CHEM241 | Organic Chemistry II | 3 |
| CHEM242 | Organic Chemistry Laboratory II | 1 |
| CHEM271 | General Chemistry and Energetics | 2 |
| CHEM272 | General Bioanalytical Chemistry Laboratory | 2 |
| ENGL101 | Academic Writing | 3 |
| ENGL393 | Technical Writing [1] | 3 |
| MATH120 | Elementary Calculus I | 3 |
| NFSC112 | Food: Science and Technology | 3 |
| BCHM463 | Biochemistry of Physiology | 3 |
| NFSC398 | Seminar | 1 |
| NFSC421 | Food Chemistry | 3 |
| NFSC423 | Food Chemistry Laboratory | 3 |
| NFSC430 | Food Microbiology | 3 |
| NFSC431 | Food Quality Control | 4 |
| PLSC110 | Introduction to Horticulture | 3 |
| or PLSC112 | Introductory Crop Science | |
| PLSC130 | Did Yeast Create Civilization? | 3 |
| AGST3XX | (Viticulture and Enology) | 4 |
| AGST3XX | (Brewing and Distilling) | 4 |
| NFSC412 | Food Processing Technology | 4 |
| NFSC2XX | (Fermented Food, Feed, and Pharmaceuticals) | 3 |
| NFSC4XX | (Fermentation Science Laboratory) | 4 |
| NFSC4XX | (Cheese and Fermented Dairy Products) | 3 |
| NFSC386 | Experiential Learning | 3-6 |
| NFSC4XX | (Sensory Analysis Lab) | 3 |
| **Total Credits** | | **87-90** |

Total Credits for Degree: 120

| Course | Title | Credits |
|---|---|---|
| **The following courses are suggested electives:** | | |
| AREC250 | Elements of Agricultural and Resource Economics | |
| BMGT110 | Introduction to the Business Value Chain | |
| BMGT220 | Principles of Accounting I | |
| BMGT360 | Strategic Management of Human Capital | |
| BMGT364 | Managing People and Organizations [1] | |
| COMM200 | Critical Thinking and Speaking [1] | |
| INAG103 | Agricultural Marketing | |
| INAG204 | Agricultural Business Management | |
| INAG206 | Agricultural Business Law | |
| NFSC100 | Elements of Nutrition | |
| NFSC422 | Food Product Research and Development | |
| NFSC434 | Food Microbiology Laboratory | |

| | |
|---|---|
| ANSC410 | The Gut Microbiome and its Roles in Health and Disease |
| NFSC450 | Food and Nutrient Analysis |
| NFSC498 | Selected Topics |
| AGST333 | Crafty Beverage Crops |

[1] High-demand course. For non-major students, these seats are assigned as "first-come, first-served". Students are encouraged to register as early as possible for a seat in these courses.

## GRADUATION PLANS

Click here (https://agnr.umd.edu/academics/advising/four-year-plans/) for roadmaps for graduation plans in the College of Agricultural and Natural Resources.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Nutrition and Food Science Major

**Program Director:** Sara Kao

The department offers three areas of concentration: dietetics, food science, and nutritional science. Each concentration provides for competencies in several areas of work; however, each concentration is designed specifically for certain professional careers.

**The dietetics concentration** develops an understanding and competency in food, nutrition, dietetics management, clinical nutritional care, community nutrition, counseling and education. The dietetics concentration is approved by the *Accreditation Council for Education in Nutrition and Dietetics (ACEND).* Dietetics program graduates must apply and complete a post-baccalaureate internship prior to taking a national exam to become a registered dietitian. The course work in the dietetics option provides a strong foundation in science. Students share classes with undergraduate students majoring in biology, chemistry, biochemistry, food science; graduate students in nutrition; and those on pre-med or pre-health track.

**The food science concentration** is concerned with the application of the fundamental principles of the physical, biological, and behavioral sciences and engineering to understand the complex and heterogeneous materials recognized as food. The food science concentration is approved by the Institute of Food Technologists and prepares students for careers in food industry and food safety.

**The nutritional science concentration** emphasizes the physical and biological sciences in relation to nutrition and the development of laboratory skills in these areas. Students in this concentration frequently elect to go on to graduate or medical school.

## Admission to the Major

The major in Nutrition and Food Science is not a Limited Enrollment Program (LEP). Students may either declare the major at the time of application or transfer into the major at any time thereafter. If interested in transferring into the NFSC major, please contact the departmental office and ask to speak with an advisor.

## Program Learning Outcomes

1. Competency in integrating laboratory skills into analysis of food.
2. Competency in assessing the nutritional status of a patient and in developing an appropriate nutrition treatment plan for the patient

## REQUIREMENTS

All students are required to earn a grade of "C-" or better in courses applied toward satisfaction of the major. This includes all required courses with a prefix of NFSC, as well as certain required courses in supporting fields. A list of these courses for each program may be obtained from the department office.

| Course | Title | Credits |
|---|---|---|
| **Base Curriculum for All Concentrations** | | |
| NFSC100 | Elements of Nutrition | 3 |
| NFSC112 | Food: Science and Technology | 3 |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | 4 |
| BSCI223 | General Microbiology | 4 |
| CHEM131 | Chemistry I - Fundamentals of General Chemistry | 3 |
| CHEM132 | General Chemistry I Laboratory | 1 |
| CHEM231 | Organic Chemistry I | 3 |
| CHEM232 | Organic Chemistry Laboratory I | 1 |
| CHEM241 | Organic Chemistry II | 3 |
| CHEM242 | Organic Chemistry Laboratory II | 1 |
| CHEM271 | General Chemistry and Energetics | 2 |
| CHEM272 | General Bioanalytical Chemistry Laboratory | 2 |
| ENGL101 | Academic Writing | 3 |
| ENGL391 | Advanced Composition | 3 |
| or ENGL393 | Technical Writing | |
| **Concentration Requirements (select one of the following):** | | **50-66** |
| Dietetics | | |
| Food Science | | |
| Nutritional Science | | |
| **Total Credits** | | **86-102** |

## Concentrations: Dietetics

| Course | Title | Credits |
|---|---|---|
| NFSC315 | Nutrition During the Life Cycle | 3 |
| NFSC350 | Foodservice Operations | 5 |
| NFSC380 | Methods of Nutritional Assessment | 3 |
| NFSC440 | Advanced Human Nutrition | 4 |
| NFSC470 | Community Nutrition | 3 |
| NFSC455 | Medical Nutrition Therapy I | 4 |
| NFSC456 | Medical Nutrition Therapy II | 4 |
| NFSC491 | Professional Issues and Opportunities in Dietetics | 3 |
| BCHM461 | Biochemistry I | 3 |
| BCHM462 | Biochemistry II | 3 |

| | | |
|---|---|---|
| BMGT364 | Managing People and Organizations | 3 |
| BSCI330 | Cell Biology and Physiology | 4 |
| BSCI450 | Mammalian Systems Physiology | 3 |
| MATH113 | College Algebra and Trigonometry | 3 |
| or MATH115 | Precalculus | |
| PSYC100 | Introduction to Psychology (SB) | 3 |
| EDMS451 | Introduction to Educational Statistics | 3 |
| or BIOM301 | Introduction to Biometrics | |
| SOCY100 | Introduction to Sociology (SB) | 3 |
| COMM200 | Critical Thinking and Speaking (HL/HA/HO) | 3 |
| **Dietetics Restricted Elective (Choose from list below)** | | **12** |
| AREC250 | Elements of Agricultural and Resource Economics | |
| BMGT220 | Principles of Accounting I | |
| BMGT360 | Strategic Management of Human Capital | |
| BSCI222 | Principles of Genetics | |
| BSCI422 | Principles of Immunology | |
| COMM200 | Critical Thinking and Speaking | |
| EDCP310 | | |
| ENST333 | Ecosystem Health and Protection | |
| KNES360 | Physiology of Exercise | |
| NFSC421 | Food Chemistry | |
| NFSC425 | International Nutrition | |
| NFSC430 | Food Microbiology | |
| NFSC498 | Selected Topics | |
| NFSC450 | Food and Nutrient Analysis | |
| Alternate course by approval of advisor | | |
| **Total Credits** | | **72** |

## Food Science

| Course | Title | Credits |
|---|---|---|
| NFSC398 | Seminar | 1 |
| NFSC412 | Food Processing Technology | 4 |
| NFSC414 | Mechanics of Food Processing | 4 |
| NFSC421 | Food Chemistry | 3 |
| NFSC422 | Food Product Research and Development | 3 |
| NFSC423 | Food Chemistry Laboratory | 3 |
| NFSC430 | Food Microbiology | 3 |
| NFSC431 | Food Quality Control | 4 |
| NFSC434 | Food Microbiology Laboratory | 3 |
| NFSC450 | Food and Nutrient Analysis | 3 |
| BCHM463 | Biochemistry of Physiology | 3 |
| BIOM301 | Introduction to Biometrics | 3 |
| COMM200 | Critical Thinking and Speaking | 3 |
| MATH120 | Elementary Calculus I | 3 |
| MATH121 | Elementary Calculus II | 3 |
| PHYS121 | Fundamentals of Physics I | 4 |
| **Food Science Restricted Elective (Choose from list below)** | | **3** |
| AREC250 | Elements of Agricultural and Resource Economics | |
| BMGT220 | Principles of Accounting I | |
| BMGT360 | Strategic Management of Human Capital | |
| BSCI222 | Principles of Genetics | |
| BMGT364 | Managing People and Organizations | |
| BSCI422 | Principles of Immunology | |
| COMM200 | Critical Thinking and Speaking | |
| EDCP310 | | |
| ENST333 | Ecosystem Health and Protection | |
| KNES360 | Physiology of Exercise | |
| NFSC425 | International Nutrition | |
| Alternate course by approval of advisor | | |
| **Total Credits** | | **53** |

## Nutritional Science

| Course | Title | Credits |
|---|---|---|
| NFSC315 | Nutrition During the Life Cycle | 3 |
| NFSC421 | Food Chemistry | 3 |
| NFSC440 | Advanced Human Nutrition | 4 |
| NFSC450 | Food and Nutrient Analysis | 3 |
| BCHM461 | Biochemistry I | 3 |
| BCHM462 | Biochemistry II | 3 |
| BCHM464 | Biochemistry Laboratory | 3 |
| BCHM465 | Biochemistry III | 3 |
| BIOM301 | Introduction to Biometrics | 3 |
| BSCI222 | Principles of Genetics | 4 |
| BSCI330 | Cell Biology and Physiology | 4 |
| BSCI450 | Mammalian Systems Physiology | 3 |
| MATH120 | Elementary Calculus I | 3 |
| PHYS121 | Fundamentals of Physics I | 4 |
| **Nutritional Science Restricted Elective (Choose from list below)** | | **3** |
| BSCI410 | Molecular Genetics | |
| BSCI422 | Principles of Immunology | |
| BSCI430 | Developmental Biology | |
| BSCI447 | General Endocrinology | |
| NFSC380 | Methods of Nutritional Assessment | |
| NFSC455 | Medical Nutrition Therapy I | |
| NFSC470 | Community Nutrition | |
| Alternate course by approval of advisor | | |
| **Total Credits** | | **49** |

### Nutritional Science restricted elective list

| Course | Title | Credits |
|---|---|---|
| NFSC380 | Methods of Nutritional Assessment | 3 |
| NFSC456 | Medical Nutrition Therapy II | 4 |
| NFSC470 | Community Nutrition | 3 |
| BSCI410 | Molecular Genetics | 3 |
| BSCI422 | Principles of Immunology | 3 |
| BSCI430 | Developmental Biology | 3 |
| BSCI447 | General Endocrinology | 3 |
| Or alternate course by approval of advisor | | |

# GRADUATION PLANS

Click here (https://agnr.umd.edu/academics/advising/four-year-plans/) for roadmaps for graduation plans in the College of Agricultural and Natural Resources.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Plant Science and Landscape Architecture

**College of Agriculture and Natural Resources**
2139 Plant Sciences Building
Phone: 301-405-4359
dcortez@umd.edu
http://psla.umd.edu

The Department of Plant Science and Landscape Architecture seeks to solve pressing worldwide issues such as mitigating climate change, maximizing crop yield sustainably to feed our growing population, improving nutritious food access for all, and creating and restoring landscapes to benefit human and environment health. Specifically, our students learn how to 1) sustainably grow food (fruit, vegetable, and grain), ornamental crops, feed and fiber crops and crops used to make plant-based fuels, 2) lead, to educate, and to participate in the careful stewardship, wise planning, and artful design of our cultural and natural environments, 3) educate the agricultural and extension educators of the future, and 4) conduct cutting edge plant-based research aimed at solving critical issues challenging the world today. We seek to offer every student a diverse curriculum aimed to ensure they gain expertise in an area they are passionate about, that offers many rewarding job opportunities, and that allows them to contribute to making our world a better place in their own way. For instance, we offer course options in horticulture, agronomy, controlled environment agriculture (including hydroponic), urban agriculture, plant molecular biology and genetics, plant breeding, plant pathology and microbiology, ecology, food safety, landscape design and construction, winemaking, and beer brewing, among many others. These courses are organized in the three programs our department offers: Agricultural Science and Technology, Landscape Architecture, and Plant Sciences. We are also very excited about our new major in Fermentation Science (https://nfsc.umd.edu/undergraduate/fermentation-science/) that is jointly offered with the Department of Nutrition and Food Science (https://nfsc.umd.edu/) focusing on how to use the fermentation process to produce a variety of products including beer, wine, yogurt, silage, cheese, and phytopharmaceuticals, among others.

## PROGRAMS

### Majors

- Agricultural Science and Technology Major (p. 126)
- Landscape Architecture Major (p. 131)
- Plant Sciences Major (p. 133)

### Minors

- Agricultural Science and Technology Minor (p. 130)
- Landscape Management Minor (p. 133)

## ADVISING

The department has mandatory faculty advising for each of its major and minor programs. Students are required to meet with their faculty advisor at least twice a year.

### Faculty Advisors

| Concentration | Faculty Advisor |
|---|---|
| AGST: Agronomy | Bill Phillips, billii@umd.edu |
| AGST: Agricultural and Extension Education | Melissa Welsh, drmwelsh@umd.edu |
| AGST: Environmental Horticulture | Diana Cochran, cochrand@umd.edu |
| Landscape Architecture | Deni Ruggeri, druggeri@umd.edu |
| PLSC: Plant Biology | Gary Coleman, gcoleman@umd.edu |
| PLSC: Turf & Golf Course Management | Mark Carroll, mcarroll@umd.edu |
| PLSC: Urban Forestry | Joseph Sullivan, jsull@umd.edu |
| Agricultural Science & Technology (Minor) | Bill Phillips (Agronomy), billii@umd.edu; Diana Cochran (Environmental Horticulture), cochrand@umd.edu |
| Landscape Management (Minor) | Mark Carroll, mcarroll@umd.edu |
| General Inquiries | Diana Cortez, dcortez@umd.edu |

See Diana Cortez, Lecturer & Academic Advisor for Undergraduate Studies, in 2139 Plant Sciences Building (301-405-4359), or email dcortez@umd.edu for additional information.

## OPPORTUNITIES

### Undergraduate Research Experiences

Students have abundant opportunities to conduct research with faculty from this department as well as related programs on campus. Research opportunities are also available at government laboratories such as USDA, NIH, etc.

### Internships

A great variety of internships are available that range from with scientists at nearby federal and state agencies, to working with farmers, greenhouse growers and fruit and vegetable producers, to working with landscape architecture and urban planning professionals.

### Student Societies and Professional Organizations

Students from the majors as well as any interested students on campus may participate in the Horticulture, Agronomy, and Student Chapter of the American Society of Landscape Architects (SASLA) clubs sponsored by the Department of Plant Science and Landscape Architecture.

### Scholarships and Financial Assistance

Many scholarships and awards are available to PSLA students. Contact the Associate Dean's office at 301-405-2078 for additional information. The department also maintains a listing of scholarships. Contact the executive administrative assistant in 2104A Plant Sciences, 301-405-4356 for additional information on these scholarships.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in

cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# Agricultural Science and Technology Major

**College of Agriculture and Natural Resources**
2139 Plant Sciences Building
Phone: 301-405-4359
dcortez@umd.edu
http://psla.umd.edu

**Program Director:** Melissa Leiden Welsh, Ph.D. (https://agnr.umd.edu/about/directory/melissa-welsh/)

Agricultural Science and Technology is an interdisciplinary major focusing on sustainable production of food, feed, fiber, fuel, and ornamentals as well as developing skills to provide agricultural education for all. This major is a science-based curriculum that allows students to obtain technological skills while developing critical thinking in a broad area of agricultural studies. There are three specializations to choose from in this major: Agronomy, Environmental Horticulture (fruit, vegetable and ornamental production outdoors and in controlled environment and hydroponic systems), and Agricultural and Extension Education.

## Agronomy

Agronomy students will focus on a broad range of agricultural disciplines providing them with a comprehensive education in crop, soil and animal sciences. Students will take courses in animal science, crop science, soil science, agricultural economics and plant protection. This specialization has electives that allows students to design their curriculum and develop knowledge in areas that meet their future goals. Graduates will be prepared to work in the agricultural industry in agricultural extension, management, marketing, regulatory, support services, as well as other opportunities.

## Environmental Horticulture

The Environmental Horticulture specialization focuses on the science, technology and management of sustainable fruit, vegetable, flower and woody ornamental plant production as well as controlled environment agriculture and hydroponic crop production. Applied aspects of the curriculum include training in plant propagation, plant identification, field production of fruits, vegetables and ornamental crops, greenhouse crop production, containerized nursery production, and food production in controlled environment and hydroponic systems. Courses are taken in plant science, soil science, plant pathology and entomology, plant protection and food safety. Graduates of this program pursue careers in production horticulture, urban agriculture, food safety and public education programs. Some own their own businesses. Students can prepare for plant science graduate programs by taking additional courses.

## Agricultural and Extension Education

The Agricultural and Extension Education specialization provides students with varying coursework in agribusiness & communications; animal, food & plant sciences; biotechnology; environmental & natural resources; leadership, youth & career development; power, structural & technical systems; and foundational pedagogical education courses. Students practice agricultural literacy techniques throughout their individualized learning experiences to develop mastery in educating using agricultural concepts with diverse audiences. Inclusion within the Terrapin Teachers program provides cross-disciplinary and interdisciplinary opportunities for learning with peers.

Graduates focused on formal education may become certified secondary high school agricultural teachers in public or private schools or specialize in an area for career technical education. Those focused as agricultural advocates may seek non-formal education jobs in non-profit agricultural literacy based foundations, become Extension youth educators, Extension agricultural specialists, or work within agricultural industry public relations areas. Proximity to federal agencies provides students with an opportunity to expand their international and regulation agency networking skills.

Undergraduates have two options.

1. The first option is to complete a double major in 4 years*: (1) Agricultural Science and Technology, Agricultural and Extension Education specialization and (2) Secondary Sciences Education. Graduates of this option are eligible to obtain teacher certification.

   *With Junior status, students could opt to enroll in the Integrated Master Certificate Program (IMCP) and complete a Curriculum and Instruction, Master of Education (M.Ed.) with Certification in the 5th year. These students are able to complete additional agricultural content courses due to the majority of their educational courses being completed in the 30 credit master's program.
2. The second option is to major in Agricultural Science and Technology, Agricultural and Extension Education specialization with no teacher certification and focus on Extension/Industry internships. Students graduating from this option could apply at a later date to complete a master's degree through the Curriculum and Instruction, Master of Education (M.Ed.) with the teacher certification (MCERT) program.

## Program Learning Outcomes

1. Students will develop technical and knowledge-based skills in the required areas of study.
2. Students will use technical and basic learned knowledge to collaborate, solve problems, and then articulate conclusions.
3. Students shall develop effective communication skills and demonstrate the ability to present ideas with clarity to an appropriate audience.
4. Students will connect and build relationships with external groups in the appropriate fields of study.

# REQUIREMENTS

**Grading Policy:** Students in the Agricultural Science & Technology program are required to earn grades of "C-" or higher in all required courses including courses used to satisfy elective requirements.

| Course | Title | Credits |
|---|---|---|
| **Major Core Courses** | | |
| **Foundational Science Courses** | | **7-8** |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | |
| Select one of the following: | | |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | |
| or PLSC275 | | |

| | | |
|---|---|---|
| **Foundational Agricultural Courses** | | |
| PLSC201 | Plant Structure and Function | 3 |
| PLSC206 | Plant Structure and Function Laboratory | 1 |
| ENST200 | Fundamentals of Soil Science | 4 |
| **Plant Protection Courses** | | |
| BSCI337 | Biology of Insects | 4 |
| or BSCI487 | IPM: Science-Based Decision Making for Sustainable Pest Management | |
| or BSCI497 | Insect Pests of Ornamentals and Turf | |
| PLSC420 | Principles of Plant Pathology | 4 |
| PLSC453 | Weed Science | 3 |
| **Specialization Requirements** | | **54-75** |
| Select one of the following specializations: | | |
| Agronomy | | |
| Environmental Horticulture | | |
| Agricultural and Extension Education | | |
| **Total Credits** | | **80-102** |

# Specializations: Agronomy

| Course | Title | Credits |
|---|---|---|
| **Agronomy Specialization Requirements** | | |
| **Mathematics Course** | | |
| MATH115 | Precalculus | 3 |
| **Biology, agronomy and animal science courses** | | |
| BSCI160 & BSCI161 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab | 4 |
| PLSC112 & PLSC113 | Introductory Crop Science and Introductory Crop Science Laboratory | 4 |
| ANSC101 & ANSC103 | Principles of Animal Science and Principles of Animal Science Laboratory | 4 |
| AGST400 | Advanced Crop Science | 3 |
| AGST401 | Tractor and Equipment Operation, Safety and Maintenance | 1 |
| AREC306 | Farm Management and Sustainable Food Production | 3 |
| **Animal Management Course (select one)** | | **3** |
| ANSC220 | Livestock Management | |
| ANSC232 | Horse Management | |
| ANSC242 | Dairy Cattle Management | |
| ANSC245 | Sheep Management | |
| ANSC255 | Introduction to Aquaculture | |
| ANSC262 | Commercial Poultry Management | |
| ANSC282 | Grazing Animal Management | |
| **Upper level (greater or equal to 300) restricted electives** | | |
| AGST, PLSC or ANSC Restricted Elective [1,2] | | 3 |
| AREC or BMGT Restricted Elective [1,3] | | 3 |
| AGST or PLSC Restricted Elective [1,4] | | 3 |
| AGST or PLSC Restricted Elective [1,4] | | 3 |
| AGST or PLSC Restricted Elective [1,4] | | 3 |
| ENST Restricted Elective [1,5] | | 3 |
| Multidiscipline Restricted Elective (Course is restricted to Education, Computer Application or Policy.) [1,6] | | 3 |
| **Internship and capstone courses** | | |
| PLSC389 | Internship | 3 |
| PLSC460 | Application of Knowledge in Plant Sciences | 3 |
| **General Electives** | | **6** |
| **Total Credits** | | **58** |

1 This course will be chosen in consultation with the academic advisor.
2 This course is restricted to 300-level or above courses within the Department of Animal and Avian Sciences.
3 This course is restricted to 300-level or above courses with the Department of Agricultural and Resource Economics or the Robert H. Smith School of Business.
4 This course is restricted to 300-level or above courses within the Agricultural Science and Technology program or the Plant Science program.
5 This course is restricted to 300 level or above courses within the Department of Environmental Science and Technology.
6 This course is restricted to Education, Computer Science or Policy.

# Environmental Horticulture

| Course | Title | Credits |
|---|---|---|
| **Environmental Horticulture Specialization Requirements** | | |
| **Mathematics Course** | | |
| MATH115 | Precalculus | 3 |
| **Economics Course** | | **3** |
| Select one of the following: | | |
| AREC250 | Elements of Agricultural and Resource Economics | |
| or ECON200 | Principles of Microeconomics | |
| **Introductory Course** | | **3-4** |
| Select one of the following: | | |
| ANSC101 & ANSC103 | Principles of Animal Science and Principles of Animal Science Laboratory | |
| BMGT110 | Introduction to the Business Value Chain | |
| BMGT160 | The Intentional Self | |
| BSCI126 | Pollinators in Crisis | |
| GEOG110 | The World Today: Global Perspectives | |
| or GEOG330 | As the World Turns: Society and Sustainability in a Time of Great Change | |
| GEOL120 | Environmental Geology | |
| INAG250 | Fundamentals of Agricultural Mechanics | |
| LARC151 | Urban Agriculture: Designing and Assessing Edible Landscapes | |
| LARC152 | Greening Cities: Who Wins, Who Loses, and Who Cares? | |
| LARC160 | Introduction to Landscape Architecture and Environmental Design | |
| LARC162 | Environmental Justice: Same World, Different Built Environment | |
| SPAN103 | Intensive Elementary Spanish | |
| **Biological Sciences** | | **4** |
| Complete the following courses: | | |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | |
| **Foundational Horticulture Courses** | | **7** |

| | | |
|---|---|---|
| Complete all listed courses | | |
| PLSC110 & PLSC111 | Introduction to Horticulture and Introduction to Horticulture Laboratory | |
| PLSC271 | Plant Propagation | |
| **Lower level (greater or equal to 100) restricted electives** | | **6-8** |
| Select two of the following courses: | | |
| AGST130 | Did Yeast Create Civilization? | |
| PLSC125 | Feeding Ten Billion by 2050: Food Security and Crop Protection | |
| PLSC203 | Plants, Genes and Biotechnology | |
| PLSC205 | Introduction to Turf Science and Management | |
| PLSC226 | Plant Diversity | |
| PLSC253 | Woody Plants for Mid-Atlantic Landscapes I | |
| PLSC254 | Woody Plants for Mid-Atlantic Landscape II | |
| AOSC200 & AOSC201 | Weather and Climate and Weather and Climate Laboratory | |
| **Agriculture Business, Economics, Management or Marketing Course** | | **3** |
| Select one of the following: | | |
| AREC306 | Farm Management and Sustainable Food Production | |
| AREC345 | Global Poverty and Economic Development | |
| AREC365 | World Hunger, Population, and Food Supplies | |
| BMGT Restricted Elective [1,2] | | |
| PLSC251 | Financial Applications for the Green Industry | |
| **Advanced Horticulture Courses** | | |
| Complete all listed courses: | | |
| PLSC432 | Greenhouse Crop Production | 3 |
| PLSC433 | Technology of Fruit and Vegetable Production | 4 |
| **Upper level (greater or equal to 300) restricted electives** | | **6-8** |
| Select two of the following: | | |
| AGST333 | Crafty Beverage Crops | |
| AGST401 | Tractor and Equipment Operation, Safety and Maintenance | |
| ENST411 | Principles of Soil Fertility | |
| LARC461 | People and the Environment | |
| PLSC303 | Global Food Systems | |
| PLSC400 | Plant Physiology | |
| PLSC425 | Green Roofs and Urban Sustainability | |
| PLSC452 | Environmental Horticulture | |
| PLSC461 | Cultural Management of Nursery and Greenhouse Systems: Substrates | |
| PLSC462 | Cultural Management of Nursery and Greenhouse Systems; Irrigation | |
| PLSC464 | Cultural Management of Nursery and Greenhouse Systems: Nutrients | |
| PLSC471 | Forest Ecology | |
| AGST or PLSC Approved Elective [1,3] | | |
| **Career Preparation Courses** | | **6** |
| PLSC389 | Internship [4] | |
| or PLSC399 | Special Problems in Plant Science | |
| PLSC460 | Application of Knowledge in Plant Sciences | |
| **General Electives** | | **6** |
| **Total Credits** | | **54-59** |

1 This course will be chosen in consultation with the academic advisor.
2 This course is restricted to the 200-level or above.
3 This course is restricted to 300-level or above courses within the Agricultural Science and Technology program or the Plant Sciences program.
4 Requires approval from advisor.

# Agricultural and Extension Education: Teaching Certificate

| Course | Title | Credits |
|---|---|---|
| **Agriculture-Related Courses** | | |
| **Animal Science** | | |
| ANSC101 & ANSC103 | Principles of Animal Science and Principles of Animal Science Laboratory | 4 |
| One of the following animal management courses: | | 3 |
| ANSC220 | Livestock Management | |
| ANSC232 | Horse Management | |
| ANSC242 | Dairy Cattle Management | |
| ANSC245 | Sheep Management | |
| ANSC255 | Introduction to Aquaculture | |
| ANSC262 | Commercial Poultry Management | |
| ANSC282 | Grazing Animal Management | |
| **Agribusiness** | | |
| MATH113 | College Algebra and Trigonometry | 3 |
| AREC250 | Elements of Agricultural and Resource Economics | 3 |
| **Biology** | | |
| BSCI160 & BSCI161 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab | 4 |
| **Power, Structural & Technical** | | |
| INAG250 | Fundamentals of Agricultural Mechanics | 3 |
| PLSC235 | | 3 |
| or INAG235 | Irrigation and Drainage | |
| **Environmental Sciences and Natural Resources** | | |
| PLSC471 | Forest Ecology (or elective focused on Renewable Energy) | 3 |
| **Plant Sciences** | | |
| PLSC110 & PLSC111 | Introduction to Horticulture and Introduction to Horticulture Laboratory | 4 |
| or PLSC112 & PLSC113 | Introductory Crop Science and Introductory Crop Science Laboratory | |
| **Food Science** | | |
| NFSC112 | Food: Science and Technology | 3 |
| or PLSC115 | How Safe is Your Salad? The Microbiological Safety of Fresh produce | |
| **Leadership & Career Development** | | |
| AGST440 | Exploring Maryland Agriculture, Agricultural Industry, and Agricultural Literacy (Exploring Maryland Agriculture, Agricultural Industries & Agricultural Literacy) | 3 |
| AGST442 | (Developing Leadership in Youth and Volunteers) | 3 |
| EDHD426 | Cognitive and Motivational Literacy Content | 3 |
| **Education Pre-Professional** | | |
| TLPL101 | Inquiry Approach to Teaching STEM (Step 1) | 1 |

| | | |
|---|---|---|
| TLPL102 | Inquiry Teaching of STEM in Middle School | 2 |
| One of the following courses: | | 3 |
| TLPL401 | Student-Centered Curriculum and Instruction | |
| TLPL488 | Special Topics in Education (TLPL488P: Project Based Instruction) | |
| TLPL414 | Knowing and Learning in Mathematics and Science | 3 |
| **Teacher Certification** | | |
| **Professional Courses** | | |
| TLPL415 | Perspectives in Science | 3 |
| TLPL425<br>or AGST425 | Learning and Teaching in Science | 3 |
| TLPL481 | Embracing Diversity in the Classroom Community | 3 |
| **Student Teaching** | | |
| TLPL478 | Professional Seminar in Education (TLPL478F: Professional Seminar in Education: Agriculture) | 2 |
| TLPL479 | Field Experiences in Education (TLPL479F: Field Experience in Science Education) | 1 |
| TLPL489 | Internship in Education (TLPL489F) | 12 |
| **Total Credits** | | **75** |

# Agricultural and Extension education: Extension/Industry

| Course | Title | Credits |
|---|---|---|
| **Agriculture-Related Courses** | | |
| **Animal Science** | | |
| ANSC101<br>& ANSC103 | Principles of Animal Science<br>and Principles of Animal Science Laboratory | 4 |
| One of the following animal management courses: | | 3 |
| ANSC220 | Livestock Management | |
| ANSC232 | Horse Management | |
| ANSC242 | Dairy Cattle Management | |
| ANSC245 | Sheep Management | |
| ANSC262 | Commercial Poultry Management | |
| ANSC282 | Grazing Animal Management | |
| **Agribusiness** | | |
| MATH113 | College Algebra and Trigonometry | 3 |
| AREC250 | Elements of Agricultural and Resource Economics | 3 |
| **Biology** | | |
| BSCI160<br>& BSCI161 | Principles of Ecology and Evolution<br>and Principles of Ecology and Evolution Lab | 4 |
| **Power, Structural & Technical** | | |
| INAG250 | Fundamentals of Agricultural Mechanics | 3 |
| PLSC235<br>or INAG235 | Irrigation and Drainage | 3 |
| **Environmental Sciences and Natural Resources** | | |
| PLSC471 | Forest Ecology (or elective focused on Renewable Energy) | 3 |
| **Plant Sciences** | | |
| PLSC110<br>& PLSC111 | Introduction to Horticulture<br>and Introduction to Horticulture Laboratory | 4 |
| or PLSC112<br>& PLSC113 | Introductory Crop Science<br>and Introductory Crop Science Laboratory | |
| **Food Science** | | |
| NFSC112<br>or PLSC115 | Food: Science and Technology<br>How Safe is Your Salad? The Microbiological Safety of Fresh produce | 3 |
| **Leadership & Career Development** | | |
| AGST442 | (Developing Leadership in Youth and Volunteers) | 3 |
| AGST440 | Exploring Maryland Agriculture, Agricultural Industry, and Agricultural Literacy (Exploring Maryland Agriculture, Agricultural Industries & Agricultural Literacy) | 3 |
| **Education Pre-Professional** | | |
| TLPL101 | Inquiry Approach to Teaching STEM (Step 1) | 1 |
| TLPL102 | Inquiry Teaching of STEM in Middle School | 2 |
| One of the following courses: | | 3 |
| TLPL488 | Special Topics in Education (TLPL488P: Project Based Instruction) | |
| TLPL401 | Student-Centered Curriculum and Instruction | |
| TLPL414 | Knowing and Learning in Mathematics and Science | 3 |
| **Industry/Extension** | | |
| **Agricultural Expanded** | | |
| ANSC255 | Introduction to Aquaculture | 3 |
| BSCI121 | | 2 |
| INAG252 | Agricultural Public Relations | 3 |
| **AREC/PLSC/LARC Restricted Elective** | | **6** |
| AREC/PLSC/LARC: Restricted Elective | | |
| **AGST Internship or Elective** [1] | | **6** |
| AGST489 | Special Topics in Agricultural Science and Technology (Internship) | 3 |
| AGST489 | Special Topics in Agricultural Science and Technology (Internship or Elective Course) | 3 |
| **Total Credits** | | **74** |

[1] Internship requirement: Students will either do two internships for a total of 6 credits or one internship for 3 credits and take a different elective course for 3 credits.

# GRADUATION PLANS

Click here (https://agnr.umd.edu/academics/advising/four-year-plans/) for roadmaps for graduation plans in the College of Agricultural and Natural Resources.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# ADVISING

The department has mandatory faculty advising for each of its major and minor programs. Students are required to meet with their faculty advisor at least twice a year.

For additional information please see:

| Concentration | Faculty Advisor |
|---|---|
| Agricultural and Extension Education | Dr. Melissa Leiden Welsh, Director and Assistant Clinical Professor, Agricultural and Extension Education Advisor, drmwelsh@umd.edu |
| Agronomy | Dr. Bill Phillips, Assistant Clinical Professor, Agronomy Advisor, billii@umd.edu |
| Environmental Horticulture | Dr. Diana Cochran, Assistant Clinical Professor, Environmental Horticulture Advisor, cochrand@umd.edu |
| General Questions | Diana Cortez, Academic Advisor & Lecturer, dcortez@umd.edu |

# OPPORTUNITIES

## Undergraduate Research Experiences

Students are encouraged to take part in faculty mentored research. Please contact an advisor for more information.

## Internships

Internships are a part of the required curriculum and can be in private or government sector employment. Formal (K-12 schools) and non-formal (non-profits, industry & Extension) education settings are available for students in the Agricultural & Extension Education specialization.

## Student Clubs and Professional Organizations

Faculty in the department advise student clubs. The department also sponsors student teams that participate in regional and national contests. These teams participate in competitions in the following areas: turf and crop science.

## Scholarships and Financial Assistance

Several scholarships and awards are available to AGST students. Contact the Associate Dean's office at 301-405-2078 for additional information. The Department also maintains a listing of scholarships. For more information regarding these scholarships contact the Chair's office in 2104A Plant Sciences, 301-405-4356.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# Agricultural Science and Technology Minor

**Agricultural Science & Technology (AGST)**
2139 Plant Sciences Building
Phone: 301-405-4359

**Contact us for more information:**

| Concentration | Faculty Advisor |
|---|---|
| Agricultural and Extension Education | Dr. Melissa Leiden Welsh, Assistant Clinical Professor & Director, drmwelsh@umd.edu |
| Agronomy | Dr. Bill Phillips, Assistant Clinical Professor, billii@umd.edu |
| Environmental Horticulture | Dr. Diana Cochran, Assistant Clinical Professor, cochrand@umd.edu |
| General Questions | Diana Cortez, Academic Advisor and Lecturer, dcortez@umd.edu |

For more information, please visit our website at http://psla.umd.edu. You may also want to check out our Minors (https://psla.umd.edu/undergraduate/degrees/minors/) page.

This minor will provide students with an appreciation and understanding of sustainable agricultural crop production. The core courses provide students with a basic foundation in plant science while supporting courses allow students to broaden their focus in different areas of agriculture. Students can select their courses in either agronomy or environmental horticulture.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Core Courses** | | |
| PLSC110 & PLSC111 | Introduction to Horticulture and Introduction to Horticulture Laboratory | 4 |
| or PLSC112 & PLSC113 | Introductory Crop Science and Introductory Crop Science Laboratory | |
| ENST200 | Fundamentals of Soil Science | 4 |
| PLSC201 | Plant Structure and Function | 3 |
| PLSC206 | Plant Structure and Function Laboratory | 1 |
| PLSC389 | Internship | 3 |
| or PLSC460 | Application of Knowledge in Plant Sciences | |
| **Supporting Courses** | | **7** |
| AGST400 | Advanced Crop Science | |
| PLSC420 | Principles of Plant Pathology | |
| PLSC433 | Technology of Fruit and Vegetable Production | |
| PLSC452 | Environmental Horticulture | |
| PLSC453 | Weed Science | |
| BSCI497 | Insect Pests of Ornamentals and Turf | |
| or BSCI337 | Biology of Insects | |
| **Total Credits** | | **22** |

**General Requirements**

- All courses presented for the minor must be passed with a grade of "C-" or better.
- All courses presented for the minor must be taken at the University of Maryland, College Park.
- Students may use a maximum of six credits or two courses to satisfy the requirements of both a major and a minor.
- The Department of Plant Science and Landscape Architecture has mandatory advising for each of its major and minor programs. Students are required to meet with their advisor at least twice a year.

- Students matriculating to this minor will need MATH113 or higher and CHEM131/132 as prerequisites

# Landscape Architecture Major

**Director:** David Myers, Ph.D. (https://agnr.umd.edu/about/directory/david-n-myers/)
**BLA Program Chair:** Deni Ruggeri, Ph.D. (https://agnr.umd.edu/about/directory/deni-ruggeri/)

Landscape Architects lead, educate, and participate in the careful stewardship, wise planning, and artful design of our built and natural environments. The Landscape Architecture curriculum is a four-year professional program.

The Bachelor of Landscape Architecture (BLA) degree is accredited by the Landscape Architecture Accreditation Board (LAAB (http://asla.org/accreditationlaab.aspx#About_LAAB)). The BLA degree meets the academic requirements for licensure in all fifty states. LAAB standards require that first-professional degree curricula must include the core knowledge skills and applications of landscape architecture: landscape architectural history, philosophy, theory, values, ethics, practice, planning, design, implementation, and management. The program is a site-based design discipline that also deals with regional and larger-scale environmental/social issues. The curriculum, centered on a studio-based design curriculum, integrates ecological and social factors into the design and planning process. Students take a series of lecture and studio design courses, beginning with an introduction to landscape design principles in the first year and culminating in an advanced research and studio design project in the graduating year. Courses include Site Analysis and Ecological Principles, Site Design Studio, Urban Design Studio, and Professional Practice, among others. Digital design studios allow the integration of computer-aided design, GIS, and other analytical and communication tools with fundamental design and drawing skills.

Landscape architects are licensed environmental design professionals who analyze, plan, co-design, manage, and preserve the built and natural environments. The work we do has a significant impact on environmental justice, community health, and quality of life. In landscape architecture, you will learn to design landscapes and communities so they can withstand and be resilient in the face of pressing global and local challenges. You will transform and protect built environments, lead design teams that include scientists, planners, engineers, architects, real clients, community groups, landscape managers, and municipal agencies. You will learn the creative skills of strategic design, and the technical skills needed to write contracts and turn your ideas on paper into functioning and performing landscapes. You will master 3D visualization software and advanced digital technologies to gather and analyze data, co-design, and construct landscapes that will form an infrastructure around which community and society will be built. You will acquire competencies and experiences in leading and crafting design processes and approaches, critically analyzing and assessing landscapes of natural and cultural value, communicating through artful storytelling (written/oral/visual), developing construction details, engineering landscapes for human inhabitation and managing water, and engaging state of the art computer applications, professional practice, and research methods for design.

Career tracks include:

- **Ecological Design** - where you are trained to analyze degraded environmental conditions such as brownfields, strip mines and abandoned urban industrial sites, and restore them to high-functioning terrestrial and aquatic ecosystems.
- **Urban Design** - where you examine civic environments and human activity and weave them together into a fabric of streets and open spaces, waterfronts and central parks, historically significant districts and communities with emerging identities, and neighborhoods that are socially equitable and economically viable.
- **Community Design** - where you address issues of climate change, cultural resource preservation, urban agriculture, redevelopment of vacant properties, crime prevention through environmental design, and a wide range of planning and design activities that embrace the views of community residents.
- **Creative Design** - where you engage in all forms of creativity, including earthworks, soundscapes, lighting design, metal fabricating, woodworking, stonework, sculpture, mosaics, murals and more. Every object in the landscape has the potential for beauty when unlocked by a savvy designer.
- **Productive Landscapes** - where you will seek to develop strategies for visions of multifunctional green spaces for the promotion of ecosystem and cultural benefits to the surrounding communities, from pocket parks to regions.

Our nationally accredited program is built around a series of technical knowledge, theory and skill-building courses that support six sequential capstone courses (studios). You will practice and master your skill sets in the capstone studios through a partnership in co-creation with a community in Washington, DC, Baltimore, and throughout the mid-Atlantic region. Through this partnership, you will learn how to envision and co-create real-world design projects under the mentorship of instructors and guests. Each capstone studio builds upon your prior experiences yet focuses on different scales, issues and project types (ecological design, urban design, community design, productive landscapes, etc.).

Courses offered by this department may be found under the following acronyms: PLSC and LARC.

# Admission to the Major

Landscape Architecture is an open-enrollment program.

## Freshman Admission

The program's goal is to have a greater proportion of program majors admitted as freshmen. All entering freshmen will gain admission to the Landscape Architecture program directly from high school, as space permits. Early application is encouraged to ensure the best possible chance for admission.

## Transfer Admission

Admission of transfer students is limited by space considerations. Students presenting an acceptable graphic portfolio, evaluated by the landscape architecture faculty, may be exempted from selected courses. Landscape architecture faculty will evaluate all other LARC-equivalent courses transferred from another institution.

## The Studio Placement Benchmark Review

Admission into the studio sequence is contingent upon attaining a successful benchmark review of a portfolio to meet content and quality standards as outlined by the LARC program. Students must earn a minimum of 80 points out of 100. Benchmark portfolio reviews occur in the spring semester. The portfolio also requires a Letter of Application to the Landscape Architecture program. Each student must write a one-page letter, addressed to the Landscape Architecture program faculty.

The letter must clearly and concisely state his/her reasons for wanting to be in the Landscape Architecture Program.

### Other Policies that Determine a Student's Retention in the Landscape Architecture Program

#### Appeals

Students who are unsuccessful in passing the Studio Placement Benchmark Review to the Landscape Architecture program and believe they have extenuating or special circumstances that should be considered may appeal in writing to the BLA Chair. The student will be notified in writing of the appeal decision.

#### BLA Degree Requirements

The courses and credit hours that define the curriculum leading to the degree of Bachelor of Landscape Architecture (B.L.A.) are described in the next section. The curriculum includes required courses for the major as well as additional general education program requirements and electives. Following the successful Studio Placement Benchmark Review, students must have an overall average of a "C" (2.0) to be eligible for the B.L.A. degree. Students must also have grades of "C-" or better in all required courses with the LARC designation.

## Program Learning Outcomes

1. Demonstrate an understanding of the design process used in landscape architectural practice.
2. Demonstrate the ability to communicate through visual literacy using hand graphics and computer technology.
3. Connect and build relationships with external groups in the appropriate fields of study.

## REQUIREMENTS

**Grade Policy:** LARC has a minimum grade policy which states that LARC students must earn a “C-“ or better in all major required courses, including LARC courses and required supporting courses in other departments. Students must also have both a cumulative GPA of at least a 2.0 and a 2.0 cumulative GPA in all major requirements in order to graduate.

| Course | Title | Credits |
|---|---|---|
| **Math** | | |
| MATH113 | College Algebra and Trigonometry (or higher level math course) | 3 |
| **Plant Science Courses** | | |
| PLSC110 & PLSC111 | Introduction to Horticulture and Introduction to Horticulture Laboratory | 4 |
| PLSC253 | Woody Plants for Mid-Atlantic Landscapes I | 3 |
| PLSC254 | Woody Plants for Mid-Atlantic Landscape II | 3 |
| **Foundational Landscape Architecture Courses** | | |
| LARC160 | Introduction to Landscape Architecture and Environmental Design | 3 |
| LARC263 | History of Landscape Architecture | 3 |
| LARC265 & LARC266 | Site Analysis and Ecological Principles and Site and Landscape Ecology Field Studies | 4 |
| **Studios** | | |
| LARC131 | Computer Visualization I | 3 |
| LARC230 | Design Fundamentals Studio | 5 |
| LARC231 | Site Planning and Design Studio | 5 |
| LARC330 | Urban Design Studio | 5 |
| LARC331 | Regional Design and GIS Studio | 5 |
| LARC430 | Community Design Studio | 5 |
| LARC471 | Capstone Praxis Studio | 5 |
| **Eco-Land Technical Courses** | | |
| LARC411 | Construction Technology I: Principles of Site Engineering | 4 |
| LARC412 | Construction Technology II: Materials and Structures | 4 |
| LARC413 | Construction Technology III: Water Soil-Centric Practices | 4 |
| **Visualization Courses** | | |
| LARC220 | Landscape Visualization II | 4 |
| LARC221 | Digital Design Tools | 3 |
| **Career Preparation** | | |
| LARC389 | Internship in Landscape Architecture (or Approved Study Abroad) | 3 |
| LARC420 | Professional Practice | 3 |
| **LARC Upper Level Restricted Electives** | | **6** |
| LARC451 | Sustainable Communities | |
| LARC452 | Green Infrastructure and Community Greening | |
| LARC453 | Introduction to GIS and Hydrologic Modeling | |
| LARC454 | Principles for Planting Design | |
| LARC461 | People and the Environment | |
| LARC470 | Landscape Architecture Seminar | |
| **Total Credits** | | **87** |

## GRADUATION PLANS

Click here (https://agnr.umd.edu/academics/advising/four-year-plans/) for roadmaps for graduation plans in the College of Agricultural and Natural Resources.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

## ADVISING

The department has mandatory faculty advising for each of its major and minor programs. Students are required to meet with their faculty advisor at least twice a year. See Diana Cortez, Undergraduate Academic Advisor & Lecturer, in 2139 Plant Sciences Building (301-405-4359, dcortez@umd.edu) for additional information.

## OPPORTUNITIES

### Undergraduate Research Experiences

Landscape Architecture faculty members frequently have research opportunities for undergraduate students. Students are encouraged to contact faculty members for any opportunities. Students may also discuss these opportunities with their faculty advisors.

### Internships

Internships are available at nearby federal, state, and county agencies as well as in private landscape architecture firms. University of Maryland

Landscape Architecture participates in the MDASLA Job Shadow Program. A list of participating firms can be found on our Careers (https://larch.umd.edu/about/careers/) page.

## Student Societies and Professional Organizations

The Student Chapter of the American Society of Landscape Architects (SASLA) provides students with opportunities to get involved with on-campus activities. The club is chartered by ASLA.

More information can be found online on our Student ASLA (https://larch.umd.edu/people/student-asla/) page.

## Scholarships and Financial Assistance

Several scholarships are awarded each year based on merit and need through the Department of Plant Sciences and Landscape Architecture. They include:

### Undergraduate Awards

- The Homeland Garden Club of Baltimore Award
- Olmsted Scholar Award
- Landscape Architecture Award of Excellence
- ASLA Honor and Merit Award Nominees
- Spirit of the Studio Award
- Matt Weaver Scholarship

Contact the Associate Dean's office at 301-405-5308 for additional information. The department also maintains a listing of scholarships. Contact the Executive Administrative Assistant in 2104A Plant Sciences, 301-405-4356 for more information.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit http://financialaid.umd.edu.

# Landscape Management Minor

**Plant Sciences (PLSC)**
2139 Plant Sciences Building
Phone: 301-405-4359
http://psla.umd.edu

**Contact us for more information:**
Dr. Mark Carroll (https://agnr.umd.edu/about/directory/mark-carroll/), Associate Professor and Director of the Environmental Science and Policy Program, mcarroll@umd.edu
Diana Cortez, Advisor and Lecturer, dcortez@umd.edu

For more information, please visit our website at http://psla.umd.edu. You may also want to check out our Minors (https://psla.umd.edu/undergraduate/degrees/minors/) page.

The Landscape Management minor provides students with a foundation in plant sciences and business management. The required science courses lead to an integrative understanding of plant growth and development and the plant's responses to its environment. These courses also teach students the skills needed to recommend best management practices and to identify plant abnormalities in the landscape. The business courses in this minor foster an understanding of the business structure, human resource management and financial management associated with landscape management companies.

All courses presented in this minor must be passed with a grade of "C-" or better. To complete this minor, students will be expected to complete an 18-19 credit course sequence. Students should also be aware that many of the courses in this minor list PLSC110 and PLSC111 as prerequisites.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| PLSC205 | Introduction to Turf Science and Management | 4 |
| PLSC251 | Financial Applications for the Green Industry | 3 |
| PLSC253 | Woody Plants for Mid-Atlantic Landscapes I | 3 |
| PLSC254 | Woody Plants for Mid-Atlantic Landscape II | 3 |
| PLSC452 | Environmental Horticulture | 3 |
| **Select two of the following courses:** | | **6** |
| PLSC401 | Pest Management Strategies for Turfgrass | |
| PLSC402 | Sports Turf Management | |
| PLSC410 | Commercial Turf Maintenance and Production | |
| PLSC453 | Weed Science | |
| **Total Credits** | | **22** |

- A student may use a maximum of six credits (or two courses) to satisfy the requirements of both a major and a minor. In the event that more than six credits of coursework listed above are required in the student's major, he or she should contact the Landscape Management faculty advisor for course substitutions.
- This minor is particularly relevant to students who are interested in pursuing a career in the landscape industry. Landscape architecture, environmental science and policy, and life science majors can readily complete these minor requirements within their four-year programs.
- Students from the business school and social sciences who are seeking managerial careers in this rapidly-expanding service industry would also find this minor to be relevant.

# Plant Sciences Major

http://psla.umd.edu/undergraduate/plant-sciences/

**Program Director:** Dr. Nidhi Rawat (https://agnr.umd.edu/about/directory/nidhi-rawat/), nidhirwt@umd.edu

**PLSC: Plant Biology Advisor:** Dr. Gary Coleman (https://agnr.umd.edu/about/directory/gary-coleman/), gcoleman@umd.edu
**PLSC: Turf & Golf Course Management and Landscape Management Advisor:** Dr. Mark Carroll (https://agnr.umd.edu/about/directory/mark-carroll/), mcarroll@umd.edu
**PLSC: Urban Forestry Advisor:** Dr. Joseph Sullivan (https://agnr.umd.edu/about/directory/joseph-h-sullivan/), jsull@umd.edu

For general questions, please email Diana Cortez, dcortez@umd.edu.

Plant Sciences combines basic science courses with applied technical classes to prepare students for research, public sector, and industry careers. Students seeking a Plant Sciences degree must complete requirements in one of the following Areas of Concentration: **Plant Biology**, **Turf and Golf Course Management**, or **Urban Forestry**.

- **Plant Biology** is designed to prepare students for graduate or professional schools and/or a career in research. This area provides

a strong foundation for postgraduate education and research careers in biotechnology, plant physiology and development, cell biology, molecular biology, plant genetics/genomics, conservation biology, ecology, and plant pathology.

*Management Programs:*

- **Turf and Golf Course Management** prepares students to succeed as a turfgrass professional in the golf course or sports turf industry, stressing an interdisciplinary approach to this career.
- **Urban Forestry** prepares students to manage urban trees and forests and enhance their sustainability. This program stresses tree biology, forest ecology and forest assessment and management tools and prepares students for careers with municipalities or government agencies as well as private industry such as power companies and the tree-care industry.

- A Landscape Management minor (p. 133) is also available in the department.

# Program Learning Outcomes

1. Students will develop technical and knowledge-based skills in the required areas of study.
2. Students will use technical and basic learned knowledge to collaborate, solve problems and then articulate conclusions.
3. Students shall develop effective communication skills and demonstrate the ability to present ideas with clarity to an appropriate audience.
4. Students will connect and build relationships with external groups in the appropriate fields of study.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Requirements for all Areas of Concentration** [1] | | |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | 4 |
| ENGL101 | Academic Writing | 3 |
| ENGL393 | Technical Writing | 3 |
| ENST200 | Fundamentals of Soil Science | 4 |
| MATH113 | College Algebra and Trigonometry | 3 |
| or MATH115 | Precalculus | |
| PLSC110 & PLSC111 | Introduction to Horticulture and Introduction to Horticulture Laboratory | 4 |
| or PLSC112 & PLSC113 | Introductory Crop Science and Introductory Crop Science Laboratory | |
| PLSC398 | Seminar | 1 |
| **Select a specialization from the list below:** | | **48-55** |
| Plant Biology | | |
| Turf and Golf Course Management | | |
| Urban Forestry | | |
| **Total Credits** | | **70-77** |

[1] With the exception of ENGL101 and ENGL393, a grade of "C-" or better is required in the courses above.

# Specializations: Plant Biology

| Course | Title | Credits |
|---|---|---|
| **Requirements** | | |
| BSCI337 | Biology of Insects | 4 |
| BSCI442 | Plant Physiology | 4 |
| or PLSC400 | Plant Physiology | |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | 4 |
| CHEM241 & CHEM242 | Organic Chemistry II and Organic Chemistry Laboratory II | 4 |
| MATH140 | Calculus I | 4 |
| or MATH120 | Elementary Calculus I | |
| PHYS121 | Fundamentals of Physics I | 4 |
| PLSC201 | Plant Structure and Function | 3 |
| PLSC206 | Plant Structure and Function Laboratory | 1 |
| PLSC202 | | 4 |
| PLSC203 | Plants, Genes and Biotechnology | 3 |
| PLSC271 | Plant Propagation | 3 |
| PLSC399 | Special Problems in Plant Science | 1-3 |
| PLSC420 | Principles of Plant Pathology | 4 |
| **Advanced Plant Science Electives** | | |
| Select one of the following: | | 3-4 |
| PLSC403 | | |
| PLSC430 | Water and Nutrient Planning for the Nursery and Greenhouse Industry | |
| PLSC432 | Greenhouse Crop Production | |
| PLSC433 | Technology of Fruit and Vegetable Production | |
| PLSC452 | Environmental Horticulture | |
| PLSC456 | | |
| PLSC474 | | |
| **Advanced Science Electives** | | |
| Select one of the following: | | 3-4 |
| BCHM261 | | |
| or BSCI461 | | |
| ENST411 | Principles of Soil Fertility | |
| ENST417 | Soil Hydrology and Physics | |
| ENST421 | Soil Chemistry | |
| PHYS122 | Fundamentals of Physics II | |
| **Total Credits** | | **49-53** |

# Turf and Golf Course Management

| Course | Title | Credits |
|---|---|---|
| **Requirements** | | |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | 4 |
| BSCI160 & BSCI161 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab | 4 |
| BSCI337 | Biology of Insects | 4 |
| CHEM104 | | 4 |
| COMM100 | | 3 |

| | | |
|---|---|---|
| or COMM107 | Oral Communication: Principles and Practices | |
| ENBE237 | | 1 |
| PHYS117 | | 4 |
| or PHYS121 | Fundamentals of Physics I | |
| PLSC305 | | 3 |
| PLSC389 | Internship | 1-3 |
| PLSC400 | Plant Physiology | 4 |
| PLSC401 | Pest Management Strategies for Turfgrass | 3 |
| PLSC402 | Sports Turf Management | 3 |
| PLSC410 | Commercial Turf Maintenance and Production | 3 |
| PLSC420 | Principles of Plant Pathology | 4 |
| PLSC453 | Weed Science | 3 |
| **Total Credits** | | **48-50** |

# Urban Forestry

| Course | Title | Credits |
|---|---|---|
| **Requirements** | | |
| AREC240 | Introduction to Economics and the Environment | 3 |
| BMGT220 | Principles of Accounting I | 3 |
| BSCI337 | Biology of Insects | 4 |
| or BSCI497 | Insect Pests of Ornamentals and Turf | |
| Select one of the following: | | 3 |
| CHEM105 | | |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | |
| ENST411 | Principles of Soil Fertility | 3 |
| LARC160 | Introduction to Landscape Architecture and Environmental Design | 3 |
| PLSC171 | | 3 |
| PLSC201 | Plant Structure and Function | 3 |
| PLSC206 | Plant Structure and Function Laboratory | 1 |
| PLSC253 | Woody Plants for Mid-Atlantic Landscapes I | 3 |
| PLSC254 | Woody Plants for Mid-Atlantic Landscape II | 3 |
| PLSC272 | Principles of Arboriculture | 3 |
| PLSC361 | | 3 |
| PLSC389 | Internship | 1-3 |
| PLSC400 | Plant Physiology | 4 |
| PLSC420 | Principles of Plant Pathology | 4 |
| PLSC471 | Forest Ecology | 3 |
| PLSC472 | Capstone-Urban Forest Project Management | 3 |
| **Total Credits** | | **53-55** |

## Suggested General Education Courses and Electives for urban forestry

| Course | Title | Credits |
|---|---|---|
| BIOM301 | Introduction to Biometrics [1] | 3 |
| Select one of the following: | | 3-5 |
| BSCI460 | Plant Ecology | |
| BSCI460 & BSCI461 | Plant Ecology and | |
| CHEM241 & CHEM242 | Organic Chemistry II and Organic Chemistry Laboratory II [1] | 4 |
| CHEM271 & CHEM272 | General Chemistry and Energetics and General Bioanalytical Chemistry Laboratory [1] | 4 |
| COMM107 | Oral Communication: Principles and Practices | 3 |
| ENST415 | Renewable Energy | 3 |
| ENST444 | | 3 |
| GEOG201 | Geography of Environmental Systems | 3 |
| GVPT170 | American Government | 3 |
| GVPT273 | Introduction to Environmental Politics | 3 |
| LARC450 | | 3 |
| MATH120 | Elementary Calculus I [1] | 3 |
| Select one of the following: | | 8 |
| PHYS121 & PHYS122 | Fundamentals of Physics I and Fundamentals of Physics II [1] | |
| PHYS141 & PHYS142 | Principles of Physics and Principles of Physics [1] | |
| PLSC200 | | 2 |
| PLSC203 | Plants, Genes and Biotechnology | 3 |
| PLSC320 | | 3 |
| PLSC473 | Woody Plant Physiology | 3 |
| PLSC475 | | 3 |
| SOCY100 | Introduction to Sociology | 3 |
| SOCY105 | Understanding Contemporary Social Problems - Frameworks for Critical Thinking and Strategies for Solutions | 3 |
| SOCY305 | | 3 |
| SPAN223 | | 3 |
| URSP100 | | 3 |
| URSP320 | | 3 |
| URSP372 | Diversity and the City | 3 |

[1] Suggested electives for students planning on graduate study in Forestry

# GRADUATION PLANS

Click here (https://agnr.umd.edu/academics/advising/four-year-plans/) for roadmaps for graduation plans in the College of Agricultural and Natural Resources.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# School of Architecture, Planning and Preservation

1200 Architecture Building
Phone: 301-405-8000
archadvise@umd.edu
http://arch.umd.edu

**Dean:** Dawn Jourdan, Esq., Ph.D.
**Associate Deans:** Brian Kelly & Lindsey May
**Assistant Dean:** Janny Peng

The undergraduate program in architecture develops critical thinkers, problem solvers and skilled professionals ready to take on the challenges of sustainable design. Our prime location between Washington, D.C., and Baltimore offers many advantages: a faculty of highly respected scholars and practitioners; alumni connections and careers at countless architectural firms; and rich architectural diversity. Begin your journey to a more sustainable and environmentally balanced world right here.

The first two years of the curriculum focus on developing a broad-based and well-rounded liberal education, complemented by courses that introduce you to architecture. You will be exposed to the many resources and opportunities of the university while refining your academic and career interests. We offer you two degree options that are tailored to fit your particular academic and career interests. The **Bachelor of Science (B.S)** curriculum is centered on design studios, with complementary coursework in architectural history, theory, technology and visual media. The studio courses offer unique experiences where you'll not only have the opportunity to show your design skills but also work with communities to help solve real-world problems.

One unique feature of the **Bachelor of Arts (B.A.)** program is your ability to pursue an academic path that reflects your passions and interests. It is not uncommon for students to discover that their interest in architecture reveals other career aspirations. Earning a Bachelor of Arts in Architecture allows you to build a foundation in architecture while preparing for careers in business, urban planning, real estate development or historic preservation, just to name a few.

Students receive rigorous and comprehensive instruction from a faculty whose members are active in professional practice and research. Their individual areas of expertise include architectural design and theory, history, architectural archaeology, technology, urban design and planning, and historic preservation.

## Admission Requirements

Email arch-admissions@umd.edu for admissions questions.

**Freshman Admission.** All first time freshmen are initially admitted into the School of Architecture, Planning & Preservation in the B.A. degree program. Students gain admission to the Undergraduate Architecture Program through the university's Office of Undergraduate Admissions. Students interested in pursuing a B.S. in Architecture will apply for that degree program while nearing the end of their first studio course, by participating in the degree placement process. This gives them the opportunity, through a competitive selection process, to move to the pre-professional B.S. degree program if they wish. The degree placement process will determine which degree program best fits their interests and talents, as well as the duration of their studies until graduation. Both the B.A. and the B.S. degrees prepare students for graduate education in Architecture. The B.A. degree prepares students broadly for graduate education in a variety of built environment disciplines.

Students should complete the following courses as prerequisites before beginning their junior year.

- ARCH170 or ARCH171, ARCH225, ARCH226, ARCH200, ARCH462 and ARCH300 with a grade of "C-"
- MATH120 and PHYS121 with a minimum grade of "C-" in both

**Transfer Admission.** All transfer students are initially admitted into the School of Architecture, Planning & Preservation in the B.A. degree program. Students gain admission to the Undergraduate Architecture Program through the university's Office of Undergraduate Admissions. To be considered for admission into the B.S. degree program, all transfer students must concurrently submit a portfolio and other pertinent documents to the School of Architecture, Planning & Preservation. Applications for the B.S. degree program are reviewed in spring. Students are admitted into the B.S. for fall only. Transfer applicants are strongly encouraged to apply to the university by the priority deadline and should contact an architecture representative at arch-admissions@umd.edu for specific details and requirements for admission into the B.S. degree program.

# ACADEMIC PROGRAMS

## Majors

- Architecture Major (p. 138)
- Real Estate and the Built Environment Major (p. 141)

## Minors

- Construction Project Management Minor (ARCH) (p. 139)
- Creative Placemaking Minor (ARCH) (p. 140)
- History and Theory of Architecture Minor (p. 140)
- Real Estate Development Minor (p. 142)

# ADVISING

Entering students are advised by the undergraduate advisors located in Prienkert Hall. Advising is mandatory for all undergraduate architecture majors each semester. Students must meet with an academic advisor to discuss their academic plan and course selection. Students can make an appointment for advising online through TerpEngage (https://terpengage.umd.edu/community/s/). Students may also contact the advising office via archadvise@umd.edu. Walk-in appointments are also available. Students may use the archadvise@umd.edu email at any time. Students should always include their full name, UID and contact information in any email correspondence.

# OPPORTUNITIES

## Academic Programs and Departmental Facilities

### Architecture Library

Located on the second floor of the Architecture Building, the Architecture library has planning and architecture books and periodicals, as well as Urban Studies and Planning studio reports. There is also a slide collection available in the Elizabeth D. Alley Visual Resources Collection on the

same floor. Librarians are available by appointment to assist with your research needs.

### Visual Resources Center

The VRC consists of more than 400,000 digital images documenting architecture and the urban scene from pre-historic times to the present. Related topics include urban design, historic preservation, real estate development, art, landscape architecture, as well as events around the school. Other visual materials include over 400 DVDs and videotapes, along with lantern slides and photographs. Images are acquired through site photography, scanning materials, commercial vendors, and donations from faculty and students.

Images and other materials may be used for presentations in school classes and for research.

### Fabrication Lab

The FabLab at the School of Architecture Planning and Preservation emphasizes the notion of learning to design through the process of making. Our students learn to influence the form and meaning of the built environment by working directly with its material and physical nature. We stress the integration of digital and hand fabrication methods, and explore how traditional technology is affected and transformed by new materials and technique.

## Internships

A career fair is organized annually and all internship/career opportunities are handled by the director of career services within the school itself and in conjunction with the University Career Center.

## Student Societies and Professional Organizations

The Architecture Student Assembly represents the student body. Assembly members are elected from undergraduate and graduate classes. Representatives attend faculty meetings, serve on committees, and organize the Architecture Program Retrospective at the end of each semester.

The School of Architecture, Planning, and Preservation sponsors a chapter of the American Institute of Architecture Students (AIAS), the national association for architecture students. The AIAS chapter sponsors a variety of activities including an annual Career Fair, Beaux Arts Ball, field trips, conferences, workshops, and other events throughout the academic year.

The University of Maryland chapter of NOMAS is affiliated with the national professional organization NOMA. NOMAS is a group of students from a variety of backgrounds pursuing architecture degrees at the undergraduate and graduate levels, interested in contributing to the UMD School of Architecture, Planning and Preservation by building a sense of community based on shared experiences unique to our diverse student body.

Women in Architecture – In a field that is predominantly male dominated, it is vital to fill the absence of a well-established community to specifically empower women. Through weekly meetings and planned events, members can discuss and understand how to spread the empowerment of all women as well as build a network of aspiring and established female architects and designers. If this is something you are interested in being a part of, please join our professional organization. Both men and women are encouraged to participate and become members of WIA.

Alpha Rho Chi (APX) is the national co-ed fraternity for architecture and the allied arts. Its brotherhood unites men and women for the purpose of fellowship and lifelong friendships, as well as professional development. This is exemplified by the fraternity's motto: Fidelitas, Amor et Artes or "Fidelity and Love of the Arts."

LGBTQIA+ Design Collective is a student group dedicated to providing a voice, increasing visibility, and fostering connections to professionals for MAPP's LGBTQIA students.

## Scholarships and Financial Assistance

Many financial awards are offered to freshman upon admission. Any questions about financial aid for freshman admits should be directed to the Office of Undergraduate Admissions and the Office of Student Financial Aid.

Each year, the School of Architecture, Planning and Preservation offers a number of merit-based scholarships to qualifying undergraduate students. Many are offered to students participating in study abroad programs. Interested students are encouraged to apply for these in early Spring. Information is available at http://arch.umd.edu. Please note that most of these scholarships are reserved for students in the studio sequence of the program.

Please visit our website for scholarship opportunities for current students: http://arch.umd.edu/programs/architecture/resources/student-resources/financial-aid/.

The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. Freshmen and sophomores are strongly encouraged to visit the OFSA early in their tenure at the University of Maryland to determine any scholarships they may be eligible for in the following years.

For more information, visit: http://financialaid.umd.edu.

## Special Advantages and Facilities

### Accreditations

NAAB - In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.

Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

The University of Maryland's School of Architecture, Planning and Preservation offers the following NAAB-accredited degree programs:

- M.Arch (pre-professional degree + 60 graduate credits)
- M.Arch (non-pre-professional degree + 109 credits)

### Facilities

The school is housed in a modern building providing design workstations for each student, a 300-seat auditorium, and seminar and classroom facilities. The Great Space, an atrium at the center of the school, is the location for collaborative projects, design reviews, critiques, and a variety of events that bring the architecture program together. Facilities include a well-equipped woodworking and model shop, computer labs, digital output and digital fabrication. The Architecture Library, one of the finest in the nation, offers convenient access to a current circulating collection of more than 34,000 volumes, 8,000 periodicals, and an extensive selection of reference materials. Rare books and special acquisitions include a collection relating to international expositions and the 11,000-volume National Trust for Historic Preservation Library.

Upper level summer programs include travel to Rome, Cuba, Japan, Great Britain, Scandinavia and other countries. Students may earn direct credit doing hands-on restoration work and by attending lectures by visiting architects, preservationists, and scholars. Undergraduate seniors and graduate students may also participate in a Studio Abroad in Florence: Live, study, and learn in the city where Architecture began. You will take classes in Leon Battista Alberti's masterpiece, the Palazzo Ruccellai, and attend studio in a newly renovated building on the banks of the Arno. In addition to learning in the classroom, you will have plenty of opportunity to visit museums, draw in piazzas, learn to speak Italian, and absorb the history of Italy while learning local customs.

## Research Units

### National Center for Smart Growth Research and Education

1112 Preinkert Fieldhouse, College Park
Phone: 301-405-6788
http://umdsmartgrowth.org

**Executive Director and Professor:** Dr. Kathryn Howell

The National Center for Smart Growth Research and Education is a non-partisan center for research and leadership training on Smart Growth and related land use issues nationally and internationally. Founded in 2000, the National Center for Smart Growth is a cooperative venture of four University of Maryland schools: Architecture, Planning and Preservation; Public Policy; Agriculture and Natural Resources; and Engineering. The mission of the center is to bring the diverse resources of the University of Maryland and a network of national experts to bear on issues of land development, resource preservation and urban growth – the nature of our communities, our landscape and our quality of life – through interdisciplinary research, outreach and education, thereby establishing the university as the national leader in this field.

# Architecture Major

**Program Director:** Mohammad Gharipour

The undergraduate program in architecture develops critical thinkers, problem solvers and skilled professionals ready to take on the challenges of sustainable design. Our prime location between Washington, D.C., and Baltimore offers many advantages: a faculty of highly respected scholars and practitioners; alumni connections and careers at countless architectural firms; and rich architectural diversity. Begin your journey to a more sustainable and environmentally balanced world right here.

The first two years of the curriculum focus on developing a broad-based and well-rounded liberal education, complemented by courses that introduce you to architecture. You will be exposed to the many resources and opportunities of the university while refining your academic and career interests. We offer you two degree options that are tailored to fit your particular academic and career interests. The **Bachelor of Science** curriculum is centered on design studios, with complementary coursework in architectural history, theory, technology and visual media. The studio courses offer unique experiences where you will not only have the opportunity to show your design skills but also work with communities to help solve real-world problems.

One unique feature of the **Bachelor of Arts** program is your ability to pursue an academic path that reflect your passions and interests. It is not uncommon for students to discover that their interest in architecture reveals other career aspirations. Earning a bachelor of arts in architecture allows you to build a foundation in architecture while preparing for careers in business, urban planning, real estate development or historic preservation, just to name a few.

Students receive rigorous and comprehensive instruction from a faculty whose members are active in professional practice and research. Their individual areas of expertise include architectural design and theory, history, architectural archaeology, technology, urban design and planning, and historic preservation.

## Admission to the Major

Freshman applicants: http://admissions.umd.edu/apply/requirements/freshman/

Transfer applicants: http://admissions.umd.edu/apply/admission-requirements/transfer-applicant-requirements/

## Program Objectives

The School's mission is to educate Architects, Planners, Preservationists, Developers and the many allied stakeholders whose work and scholarship focuses on the quality of the built environment and promotes social justice, cultural value, resource conservation and economic opportunity.

We take advantage of our unique location—in a region that features the nation's capital and the post-industrial City of Baltimore, and links the Appalachian Mountains to the Atlantic Ocean while surrounding the Chesapeake Bay. Maryland's opportunities and challenges are found in its diverse communities, explosive growth and extensive historic resources.

Our faculty, students and alumni collaboratively advance their vision and commitment through research, teaching, colloquia, writing, creative design, planning, policy formation and professional work. Our mission is historically rooted in our land grant mandate and enhanced by our regional and international activities.

## Program Learning Outcomes

1. Students should be able to demonstrate the ability to think critically about the role of context in design.
2. Students should be able to demonstrate an ability to communicate design intentions, visually and verbally.

3. Students should be able to demonstrate an ability to demonstrate knowledge from the technology course sequence into the design process.
4. Students should demonstrate the ability to design projects that provide healthful environments while conserving resources for future generations.
5. Students should demonstrate an understanding of the ethical issues underpinning the formation of professional judgement in architectural design and practice.

## REQUIREMENTS

All students must complete the following courses:

| Course | Title | Credits |
|---|---|---|
| MATH120 | Elementary Calculus I | 3 |
| or MATH140 | Calculus I | |
| PHYS121 | Fundamentals of Physics I | 4 |
| ARCH171 | Design Thinking and Making in Architecture | 3 |
| ARCH225 | History of World Architecture I | 3 |
| ARCH200 | Design Media and Representation I | 3 |
| ARCH226 | History of World Architecture II | 3 |
| ARCH300 | Design Media and Representation II | 3 |
| ARCH201 | Elements and Principles of Architecture | 1 |
| ARCH462 | Methods & Materials of Building Construction | 3 |
| ARCH400 | Architecture Design Studio I | 6 |
| ARCH463 | Sustainable Systems in Architecture | 3 |
| **Total Credits** | | **35** |

For the Bachelor of Science degree option, students must complete three additional 6-credit design studios and accompanying technical/structures courses.

| Course | Title | Credits |
|---|---|---|
| ARCH401 | Architecture Design Studio II | 6 |
| ARCH402 | Architecture Design Studio III | 6 |
| ARCH403 | Architecture Design Studio IV | 6 |
| ARCH464 | Architectural Structures I | 3 |
| ARCH465 | Architectural Structures II | 3 |
| ARCH466 | Environmental Systems in Architecture | 3 |
| ARCH474 | | 1 |
| ARCH4XX | | 12 |
| **Total Credits** | | **40** |

For the Bachelor of Arts degree option, students must complete 36 additional credits in upper level Architecture electives and a minimum of 9 additional credits in directed electives inside or outside the major.

| Course | Title | Credits |
|---|---|---|
| Select 36 additional credits in upper level Architecture electives | | 36 |
| Select 9 additional credits in directed electives inside or outside the major | | 9 |
| **Total Credits** | | **45** |

## GRADUATION PLANS

Click here (https://arch.umd.edu/programs/architecture/resources/student-resources/advising/undergraduate-advising/degree-planning/) for roadmaps for graduation plans in the School of Architecture, Planning, and Preservation.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Construction Project Management Minor (ARCH)

**A. James Clark School of Engineering**
1131 Glenn L. Martin Hall
Phone: 301-405-0234

**School of Architecture, Planning and Preservation**
Architecture Building
Phone: 301-405-8000

**Program Director:** Qingbin Cui, Ph.D.

A minor in Construction Project Management will prepare students for employment in one of the many careers related to the built environment, such as project management, architectural engineering, design and commercial construction. Students will learn how to manage multiple phases of operation and management in the construction process including building information modeling, cost estimating, project scheduling, construction financing and planning. The Construction Project Management minor is ideal for students in Architecture, Engineering and similar fields. This minor is designed to give students a competitive advantage when applying for a job in the construction industry.

## Admission Requirements

This minor is only available to undergraduate students in the A. James Clark School of Engineering and the School of Architecture, Planning and Preservation who have earned at least 60 credit hours (Junior standing), and have a cumulative University of Maryland GPA of 3.0 or higher.

## Application Process

Interested students must complete an application to the minor, and obtain approval from their major advisor and the CPM minor advisor for their school. Students can obtain an application from their major advisor or go to: http://pm.umd.edu/program/cpm-minor/ for an online copy.

For more information about this minor, please contact the advisor associated with your College/School:

- Engineering – CPM Minor Advisor: Dr. Qingbin Cui, cui@umd.edu
- Architecture – CPM Minor Advisor: Maoqing Wang, mwang110@umd.edu

## REQUIREMENTS

The Minor in Construction Project Management consists of 15 credit hours. Students must complete 5 of the following courses with a grade of "C-" or better and have a minimum 2.0 GPA for the minor. Students must also complete an internship in the construction industry.

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| ENCE325 | Introduction to Construction Project Management [1] | 3 |
| ENCE423 | Project Planning, Estimating & Scheduling [1] | 3 |
| ENCE424 | Communication for Project Managers [2] | 3 |
| ENCE426 | Construction Documentation and BIM Applications in Engineering and Construction [1] | 3 |
| or ARCH472 | Building Information Modeling Communication and Collaboration | |
| **Electives** | | |
| Select one of the following: | | 3 |
| ENCE420 | Selection and Utilization of Construction Equipment [3] | |
| ENCE421 | Legal Aspects of Architectural and Engineering Practice [4] | |
| ENCE422 | Project Cost Accounting and Economics [2] | |
| ARCH430 | Measuring Sustainability in Architecture [3] | |
| ARCH462 | Methods & Materials of Building Construction [3] | |
| ARCH467 | Integrated Project Delivery [3] | |
| **Total Credits** | | **15** |

1 Course offered in Fall and Spring
2 Course offered in Fall, Spring and online in the Summer
3 Course offered in the Fall
4 Course offered in the Spring

All courses are also offered online in the summer session. Please see the Schedule of Classes (https://app.testudo.umd.edu/soc/).

# Creative Placemaking Minor (ARCH)

creativeplaceminor@umd.edu
http://go.umd.edu/creativeplace (https://art.umd.edu/academic-programs/creative-placemaking-minor/)

**Director:** Professor Ronit Eisenbach, RA

The Creative Placemaking minor is a joint program of the School of Architecture, Planning, and Preservation and the College of Arts and Humanities. This minor educates students to leverage the power of the arts, culture, and creativity for the support of vibrant communities, by engaging with local stakeholders and arts practitioners. This minor currently offers two concentrations, one focusing on architecture design and the other on the visual arts. The program is open to all majors, but priority admission will be given to students majoring in Architecture and Studio Art.

## Program Learning Outcomes

1. Students will have the opportunity to develop and demonstrate an understanding of the basic concepts of and approaches to Creative Placemaking, as well as the political, social, economic, and ethical dimensions involved in Placekeeping and Placesharing.
2. Students will be able to evaluate places through inquiry, observation, research, and the application of a critical lens to gain understanding of the complexity, richness, and character of places and our relationship(s) to them.
3. Students will be able to demonstrate an ability to analyze and consider how design choices and artistic representations shape experience and elevate particular ways of knowing and being that reflect specific cultural heritage and values.
4. Students will be able to demonstrate an appreciation of the roles that architects and artists can play in supporting the shaping of human landscapes as works in progress.
5. Students will be able to demonstrate a technical and/or artistic skill that advances the collaborative and creative process and placemaking through visual, performative, written, and/or oral means.
6. Students will be able to demonstrate an ability to envision, conceive, collaborate, and create responsive works for and with places and people.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| ARCH350 | (Introduction to Creative Placemaking) | 3 |
| **Concentration (choose one of the following):** | | **6** |
| Concentration in Architecture (6 credits): | | |
| ARCH409 | (Studio in Creative Placemaking) | |
| Concentration in the Visual Arts (6 credits): | | |
| ARTT426 | Advanced Painting: Painting on Site I | |
| ARTT427 | Advanced Painting: Painting on Site II | |
| ARHU439 | Interdisciplinary Studies in Arts and Humanities (ARHU439C Studio in Creative Placemaking) [1] | |
| **Electives (Choose at least 6 credits from the following list):** [2] | | **6** |
| http://art.umd.edu/academic-programs/creative-placemaking-minor/creative-placemaking-minor-electives (http://art.umd.edu/academic-programs/creative-placemaking-minor/creative-placemaking-minor-electives/) | | |
| **Total Credits** | | **15** |

1 ARHU439C Studio in Creative Placemaking may be repeated to 6 credits if content differs.
2 Students may take no more than 3 elective credits from the same department without special approval by CRPM director; Special topics and independent studies courses will require the permission of the director.

# History and Theory of Architecture Minor

**School of Architecture, Planning and Preservation**
Architecture Building
Phone: 301-405-8000
archadvise@umd.edu
http://ARCH.umd.edu

**Program Director:** Joseph Williams, Ph.D.

The minor in History and Theory of Architecture will provide students who have an interest in architectural history the opportunity to develop an understanding and appreciation of architecture as a basic component of human society. Students will gain an insight of diverse architectural cultures as well as apply diverse research methods in order to understand architectural phenomena in a broad context. The History and Theory of

Architecture minor is ideal for students in Architecture and Art History. Students in other majors will be considered on a case-by-case basis.

## Program Learning Outcomes

1. Understand diverse historical and global architectural cultures (quizzes, exams).
2. Ability to apply accepted research methods of architectural history (research papers).
3. Ability to analyze and explain architectural phenomena in a broader historical context (research papers).
4. Critically evaluate various theories of architecture in the consideration of particular topics (research papers, participation in discussion).
5. Create and defend a coherent scholarly argument (research papers, final capstone paper).

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Prerequisite Courses** | | |
| ARCH225 | History of World Architecture I | |
| ARCH226 | History of World Architecture II | |
| **Topical History of Architecture Courses** | | **9** |
| ARCH420 | History of American Architecture | |
| ARCH422 | | |
| ARCH423 | History of Roman Architecture | |
| ARCH428 | Selected Topics in Architectural History (Consult program for eligible courses) | |
| ARCH433 | | |
| ARCH434 | | |
| ARCH435 | History of Contemporary Architecture | |
| **Architectural History/Theory Seminar** [1] | | **6** |
| ARCH427 | Theories of Architecture | |
| ARCH428 | Selected Topics in Architectural History (Consult program for eligible seminar courses) | |
| ARCH481 | The Architect in Archaeology | |
| ARCH482 | The Archaeology of Roman and Byzantine Palestine | |
| ARCH483 | Field Archaeology | |
| **Total Credits** | | **15** |

[1] One course must include a capstone paper.

# Real Estate and the Built Environment Major

**Program Director:** Maria Day-Marshall, J.D., LL.M

The major in Real Estate and the Built Environment expands the traditional, narrowly focused, business approach to real estate, finance, investment and management, providing students with broad perspectives that come from the multitude of disciplines that make up the modern practice of real estate. From construction methods and materials to politics and public policy, and from urban planning and design, to transportation, to building and landscape architecture, modern real estate development is a multi-disciplinary practice. The major offers a set of required courses to introduce students to the complexity of real estate and the built environment practice, as well electives in the affiliated fields that impact the Built Environment. The focus is on transformational real estate practice, addressing issues posed by individual and collective decisions about the built environment ranging from social and environmental justice, to climate change, to community identity and heritage.

## Program Learning Outcomes

1. Core Concepts of the Real Estate Development Process: Students will demonstrate their knowledge of the core concepts of the real estate development process including its principles, practice and participants. They will demonstrate their basic knowledge of how developers create value by making tangible improvements to real property.
2. Fundamental Legal and Financial Real Estate Concepts: Students will demonstrate their knowledge of real estate financial concepts necessary to read and employ financial statements, income and revenue reports of properties and portfolios, and the ability to explain and undertake a basic real estate pro forma. Students will also demonstrate their knowledge of real estate legal concepts necessary to read and understand legal documents related to real estate.
3. Affiliated Fields Contributing to or Impacting the Built Environment: Students will demonstrate their knowledge of fundamental concepts and terminology necessary to interact and engage the wide variety of fields and professions necessary for successful real estate development. Those fields include architecture, planning, law, construction, public policy and engagement as well as the issues of environmental impacts and sustainability.
4. Professional Skills: Students will demonstrate professional skills as indicated by an ability to: produce effective visual (typically Power Point) presentations, prepare effective documents in business writing style, and undertake effective oral presentation and persuasive communication.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Core Required Courses** | | **15** |
| RDEV250 | People, Planet, and Profit: Building Sustainable Places | |
| RDEV350 | Real Estate Development: Introduction to Principles, Process, and Practice | |
| RDEV410 | Legal Foundations of Real Estate (Legal Foundations of Real Estate) | |
| RDEV415 | Principles, Process and Politics of Planning for Real Estate Development (Principles, Process and Politics of Planning for Real Estate Development) | |
| RDEV450 | Foundations of Real Estate Finance and Investment | |
| **Cognate Required Courses** | | |
| Select one of the following finance related courses: | | 2-3 |
| RDEV270 | Tax and Accounting for Real Estate Development | |
| BMGT210 | Foundations of Accounting for Non Business Majors | |
| Select one of the following architecture/design related courses: | | 3 |
| RDEV440 | (Principles of Urban Design for Real Estate Professionals) | |

| | | |
|---|---|---|
| RDEV445 | Essentials of Architectural Design and Construction Management for Real Estate Professionals (Essentials of Architectural Design and Construction Management for Real Estate Professionals) | |
| ARCH270 | Design in Practice | |
| Select one of the following historic preservation courses: | | 3 |
| HISP200 | The Everyday and the American Environment | |
| HISP205 | (American Idols: Introducing Historic Preservation) | |
| Select one of the following urban planning courses: | | 3 |
| URSP250 | The Sustainable City: Exploring Opportunities and Challanges | |
| URSP372 | Diversity and the City | |
| **Culmination Required Courses** | | |
| Select three to four credits from among the following courses: [1] | | 3-4 |
| RDEV470 | (Real Estate Case Studies) | |
| RDEV471 | ( Real Estate Literature) | |
| RDEV472 | (Real Estate Critical Issues) | |
| RDEV473 | Real Estate Case Study Competition (Real Estate Case Study Competition) | |
| RDEV478 | Special Topics in Real Property Development | |
| **Electives** | | |
| Select three of the following courses: [2] | | 9 |
| Any Cognate Course not otherwise taken to meet the REBE Cognate Credit Requirements | | |
| AASP101 | Public Policy and the Black Community | |
| AGNR/ PLCY301 | Sustainability | |
| AMST205 | Material Aspects of American Life | |
| AMST207 | | |
| AMST262 | Houses, Schools, and Prisons in American Life | |
| ARCH170 | Design Thinking and Architecture | |
| ARCH201 | Elements and Principles of Architecture | |
| ARCH225 | History of World Architecture I | |
| ARCH226 | History of World Architecture II | |
| ARCH420 | History of American Architecture | |
| ARCH435 | History of Contemporary Architecture | |
| BMGT313 | Financial Statement Analysis | |
| BMGT345 | Foundations of Financial Management for Non Business Majors | |
| BMGT350 | Marketing Principles and Organization | |
| BMGT382 | Marketing and Innovation for Entrepreneurs | |
| BMGT445 | Banking and Financial Institutions | |
| BMGT461 | Entrepreneurship | |
| COMM330 | Argumentation and Public Policy | |
| COMM385 | Influence | |
| COMM425 | Negotiation and Conflict Management | |
| ECON200 | Principles of Microeconomics | |
| ECON490 | Urban & Regional Economics: Issues and Policies | |
| ENCE325 | Introduction to Construction Project Management | |
| ENCE420 | Selection and Utilization of Construction Equipment | |
| ENCE421 | Legal Aspects of Architectural and Engineering Practice | |
| ENCE422 | Project Cost Accounting and Economics | |
| ENSP330 | Introduction to Environmental Law | |
| ENSP340 | Water: Science, Ethics, and Policy | |
| GVPT260 | | |
| GVPT273 | Introduction to Environmental Politics | |
| HIST135 | Civil Discourse or Urban Riot: Why Cities Don't (Often) Explode | |
| LARC452 | Green Infrastructure and Community Greening | |
| LARC461 | People and the Environment | |
| MIEH330 | Environmental Justice, Racism, and Environmental Health Disparities: How where you live can kill you | |
| MIEH331 | The Built Environment, Sustainability, and Public Health: The Good, the Bad, and the Ugly | |
| PHSC430 | Public Health in the City: Perspectives on Health in the Urban Environment | |
| PLCY215 | Innovation and Social Change: Creating Change for Good | |
| PLCY312 | | |
| PLCY313 | Advocacy in the American Political System | |
| Summer Study Abroad courses as appropriate | | |
| Other courses related to Real Estate and the Built Environment as may be approved by the program director | | |

[1] Credits required depends on whether a student took RDEV270 (3 credits), or BMGT210 (2 credits)

[2] Some courses have prerequisites that a REBE student may have met or not; seats in electives are not assured for REBE students.

## GRADUATION PLANS

Click here (https://arch.umd.edu/programs/architecture/resources/student-resources/advising/undergraduate-advising/degree-planning/) for roadmaps for graduation plans in the School of Architecture, Planning, and Preservation.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Real Estate Development Minor

**School of Architecture, Planning and Preservation**
Architecture Building
Phone: 301-405-8000
archadvise@umd.edu
http://ARCH.umd.edu

**Program Director:** Maria Day-Marshall, J.D., LL.M

Undergraduates from across campus with an interest in real estate can now complete a minor in real estate development. The minor will provide students with a basic understanding of the essential concepts related to sustainable real estate development. Classes cover the development process; the basics of real estate finance, tax and investment; urban planning and design; and the unique roles played by government and the private sector in real estate development, among others.

# Admissions Requirements

This minor is available to all Maryland undergraduate students with a GPA of 2.0 or higher.

# Application Process

Interested students must complete an application and meet with a Real Estate Development minor advisor. See: http://arch.umd.edu/programs/real-estate-development/academics/real-estate-development-admissions/real-estate-development-minor-admissions/ for the online application and a scheduling app to make an appointment.

# REQUIREMENTS

The Minor in Real Estate Development consists of 15 credit hours. Students must complete all the required courses with a grade of "C-" or better and have a minimum UMD GPA of 2.0 for the minor.

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| ARCH271/ RDEV250 | People, Planet, and Profit: Building Sustainable Places | 3 |
| RDEV270 | Tax and Accounting for Real Estate Development [1] | 3 |
| RDEV350 | Real Estate Development: Introduction to Principles, Process, and Practice | 3 |
| RDEV450 | Foundations of Real Estate Finance and Investment | 3 |
| **Elective** | | |
| Select one elective [2] | | 3 |
| **Total Credits** | | **15** |

1. This requirement can also be met in any of the following ways: Equivalent accounting course at another 4-year institution or community college if it qualifies for transfer credit at UMD or BMGT220 (available to all UMD undergraduates).
2. Plus, select one elective from a list of permitted electives that can be found at: https://arch.umd.edu/programs/real-estate-development/academics/real-estate-development-degrees/real-estate-development-minor (https://arch.umd.edu/programs/real-estate-development/academics/real-estate-development-degrees/real-estate-development-minor/).

# College of Arts and Humanities

1102 Francis Scott Key Hall
Phone: 301-405-2088
http://arhu.umd.edu

**Dean:** Stephanie Shonekan, Ph.D.

The College of Arts and Humanities embraces a heterogeneous group of disciplines that study human experience, thought, expression and creativity. All value the development of critical thinking, fluent expression in writing and speech, sensitivity to ethical and aesthetic issues, and a complex understanding of history, culture, diversity, equity, inclusion, and social justice in our society. Departments and programs in Arts and Humanities prize vigorous intellectual debate in a diverse community. While they have strong individual identities, they are also involved in interdisciplinary studies. Thus students will find, for example, courses in the Department of English that approach the medical humanities through literature, courses in the Department of History that adopt feminist perspectives, courses in the Department of Classics that connect contemporary life to antiquity, courses in the Department of Philosophy that embrace economic and political thought, and courses in the Department of Art that integrate computer science.

These ways of thinking inspire and challenge students to BE WORLDWISE in every sense. ARHU academic and career advisors help students navigate their college journey so they can discover their passion, develop their academic plan and infuse their UMD experience with internships, engaged research with faculty, career explorations and study abroad. ARHU sponsors study abroad programs in Cuba, France, Italy, Martinique, Morocco, Spain, and the United Kingdom, including the Arts and Humanities in London Program. Students have unparalleled opportunities to apply theory to practice in internship sites, museums, libraries, theaters, law firms, corporate offices and the federal and Maryland state government in the Prince George's County-Washington, DC-Baltimore-Annapolis area.

Further examples of the special opportunities available to students in this richly variegated college include an exceptional visual resource center in Art History and Archaeology, the David C. Driskell Center for the Study of Visual Arts and Culture of African Americans and the African Diaspora, the English Department's BookLab makerspace, and the School of Languages, Literatures, and Culture's Center for Innovation in Teaching and Learning Media Classroom. Additionally, the educational vistas open to students in the School of Music and the School of Theatre, Dance, and Performance Studies are enhanced enormously by the Clarice Smith Center for the Performing Arts, which houses those departments. Students may also participate in one of the college's five living-learning programs: Honors Humanities, College Park Scholars-Arts, Design Cultures & Creativity, Jiménez-Porter Writers' House, and Language House.

## Admission Requirements

Freshmen and transfer students interested in applying for admission should refer to the general university admissions information provided in the catalog. Admission to the college's School of Music is a two-step process: undergraduate applicants must apply to both the Office of Undergraduate Admissions and to the School of Music. Visit http://music.umd.edu/admissions/ for information. Further, students wishing to major in creative or performing arts are encouraged to seek training in the skills associated with such an area prior to matriculation. Applicants to these programs may be required to audition or submit a portfolio as a part of the admission requirements. For more information about the college's academic programs, please contact arhu-admit@umd.edu or 301-405-2108.

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# COLLEGE REQUIREMENTS

## Major Requirements

- All students must complete a program of study consisting of a major (a field of concentration) and sometimes supporting courses as specified by one of the academic units of the college. No program of study shall require in excess of 60 semester hours.
- A major shall consist, in addition to the lower-division departmental prerequisites, of 24 to 40 hours, at least 12 of which must be in courses numbered 3xx or 4xx and at least 12 of which must be taken at the University of Maryland, College Park.
- A major program sometimes requires a secondary field of concentration (supporting courses). The nature and number of these courses are determined by the major department.
- No grade lower than "C-" may be used to fulfill major or supporting course requirements. No course for the major or support module may be taken Pass-Fail.
- Students must earn at least a 2.0 cumulative GPA to graduate from the University of Maryland.
- An overall GPA of 2.0 in the major is required for graduation.
- Students should consult the unit in which they will major for specific details; certain units have mandatory advising.
- Students must complete the World Language Placement (https://arhu.umd.edu/academics/world-language-placement (https://arhu.umd.edu/academics/world-language-placement/)) prior to adding a major in the College of Arts and Humanities unless the student has fulfilled the required language prerequisites. Students who enter the university as Arts and Humanities majors must take the placement by the end of their first semester on campus. Bachelor of Music students are exempt from taking the world language placement. For more information about Bachelor of Music requirements, please see http://music.umd.edu.

### Graduation Requirements

**To graduate, all students must earn at least 120 credits and at least a 2.0 cumulative GPA. Additionally, students must complete College of Arts and Humanities requirements.**

The following college requirements apply only to students earning Bachelor of Arts degrees from the College of Arts and Humanities. These requirements are in addition to or in fulfillment of campus and departmental requirements. For information concerning the Bachelor of Music in the School of Music, students should consult a Music advisor.

Students who double major in ARHU and another college on campus must complete the ARHU Global Engagement requirement and 39 hours of 3xx or 4xx-level credit.

All Arts and Humanities first-year students (excluding students in a two-year living-learning program) must take ARHU158, Explorations in the Arts and Humanities, during their first semester on campus.

**Distribution:** To encourage advanced mastery of material, a minimum of 39 of the total of 120 semester hours must be 3xx-4xx level work.

For more information about the CORE program, please visit http://ugst.umd.edu/core/.

For more information about the General Education program, please visit http://gened.umd.edu.

## The Global Engagement Requirement

To expand ARHU students' understanding of other cultures and language in an increasingly global society, ARHU students must complete the "Global Engagement Requirement." Learning a second language produces deep knowledge of cultural as well as linguistic differences while opening pathways for common understanding. The requirement may be satisfied in one of three ways.

### Option 1: Study of a World Language

*Requirement:* Students will take world language coursework to the designated level at UMD. Please consult an ARHU advisor for a list of the approved course sequences.

### Option 2: Cultural Immersion through Study Abroad

*Requirement:* Students will participate in a semester long Study Abroad experience in a country where English is not the primary language.

The study abroad experience must include:

1. At least the first year/elementary level language of the host country before or during the experience (or equivalent as determined by the ARHU world language placement policy);
2. A reflection component that will challenge students to assess their pre-departure, in country and post study abroad experience;
3. Participation in one of the following pre-approved engagement experiences:
   a. Internship
   b. Service Learning
   c. A living situation involving daily interaction with host nationals (e.g., a pre-approved home stay with a host national family)
   d. Other - an engagement experience approved in advance of departure

Students must develop a learning contract with an ARHU advisor in advance of studying abroad in order for the experience to count for the Global Engagement Requirement. Past study abroad experiences will not be considered retroactively.

### Option 3: Individually-designed Engagement Experience

*Requirement:* Students may also create an individually-designed experience that achieves the learning outcomes of the global engagement requirement.

This option must include:

1. At least the first year/elementary level language of the host country before or during the experience (or equivalent as determined by the ARHU world language placement policy);
2. A pre-approved short- or long-term study abroad program that has been deemed appropriate for inclusion in this option by ARHU in conjunction with the Education Abroad Office;
3. Students must develop a learning contract with an ARHU advisor and petition to have the experience approved in advance.

Students proposing study abroad in an English-speaking country must choose to study a language that has significance to the historical or current culture of the host country. Students will need to research and discuss the intersection of the chosen language and culture in their petition.

### Important Notes

1. Students already beyond the required language needed to fulfill the Global Engagement Requirement must document their language proficiency by taking the world language placement or equivalent as determined by the ARHU world language placement policy.
2. Students taking a world language class at the University of Maryland on or after 9/15/2011 will need to take the world language placement. Please see an ARHU advisor for details.
3. Students seeking exemption from the Global Engagement Requirement must take the world language placement in an on-campus proctored environment. Please see an ARHU advisor or see https://arhu.umd.edu/academics/world-language-placement/proctored-wlp/ for the proctored placement schedule.

For more information, please see an advisor in the ARHU Office of Student Affairs, call 301-405-2108, or visit https://arhu.umd.edu/academics/advising/global-engagement/.

# ADVISING

Freshmen and new transfer students have advisors in the College of Arts and Humanities, Office of Student Affairs (301-405-2108) who assist them in the selection of courses. Students must see an advisor in their department for assistance in the selection of courses for the major. All first-year students (both freshmen and transfers), students who have completed 45-55 credits, and seniors who have completed 86-100 credits have mandatory advising with both the college and the department. For further information about advising, students should call the ARHU Office of Student Affairs, 301-405-2108.

# Secondary Education Teacher Certification

A student interested in a career as a secondary education teacher in a subject represented in this college is encouraged to speak with an advisor in the College of Education Office of Student Services (1204 Benjamin Building) to discuss the different pathways available for certification. The College of Education offers programs that lead to certification for grades PreK-12 in Studio Art and World Language (Chinese, French, German, Italian, Russian, Spanish), and grades 7-12 in English and Social Studies (History). Degree pathways that lead to certification include the following:

1. An undergraduate double major in the content area and secondary education,
2. The five-year integrated master's program, which allows for the content major as an undergraduate degree and completion of certification and graduate degree requirements in a fifth year, or
3. The one-year intensive master's plus certification program.

# OPPORTUNITIES

# Internships

Most departments within Arts and Humanities have well-established internship options. For more information on internships taken for academic credit toward their major, students should contact their departmental academic advisor. Internship credit is also available directly through the college for students who have fewer than 60 credits, students who are first semester students at UMD, students who have already

completed an internship in their major or would like to explore an area outside their major, students who are engaging in research experiences or students who are doing remote internships or interning in a legislative environment. Typically, students must have a 2.5 GPA. They need to complete an application process and the experience usually lasts for a full semester or over the summer. Students must be enrolled for the internship during the semester in which they intern. Retroactive credit and credit for continuing internships will not be awarded. Internships are not considered to be a "credit for work" experience. In addition to participating in the on-site or remote experience, students will also fulfill an academic component. Students are eligible to be paid at their internship and still earn academic credit. For assistance in locating an internship, connect with the University Career Center at ARHU. Visit http://arhu.umd.edu/careers/ for more information about appointment scheduling and career programs.

# Living-Learning Programs

## Honors Humanities

0111 Anne Arundel Hall
Phone: 301-405-1537
hhum@umd.edu
http://honorshumanities.umd.edu

**Director:** Randy Ontiveros, Ph.D.
**Associate Director:** Sarah Humud, Ph.D.

Entering freshmen participate by invitation in Honors Humanities, a two-year living-learning program at the University of Maryland. Honors Humanities is a prestigious undergraduate program for academically talented students who come from majors across campus. These students share a passion for the arts and humanities and desire both a well-rounded education and a competitive edge on the job market. The program is organized around a diverse and interdisciplinary curriculum. It culminates in an independent research, service or creative project (the "Keystone Project") that a student designs and executes with the guidance of a faculty mentor. Honors Humanities provides students with engaging classes, fun extracurricular activities, life-long friendships, a lively home in Anne Arundel Hall, and opportunities to take advantage of the intellectual, social, and cultural riches of the Washington, D.C. region. Upon completion of the program, students earn an Honors Humanities citation, and this award is recorded on their university transcripts.

## College Park Scholars-Arts

1110 Bel Air Hall
Phone: 301-405-0522
http://scholars.umd.edu

**Director:** Harold Burgess

The College Park Scholars Arts Program, sponsored by the College of Arts and Humanities and Undergraduate Studies, is a community of diverse, spirited and talented individuals from a range of academic disciplines. No matter one's major, area of artistic interest, or skill level, as a member of our community, students will be challenged to strengthen their personal artistic skill set, experiment with new and different art forms, and gain a deeper understanding of the value of the arts in our personal and collective lives.

The Arts are not just for experts. They are not solely for the enjoyment of the elite. They are not a superfluous extravagance. The Arts are for us all, expert and novice alike. They are not just an end in and of themselves, but a means. They shape, and are shaped by the world we inhabit.

Aligned with the campus-wide Arts For All initiative, we empower students to build meaningful connections across a broad spectrum of arts and culture at the University of Maryland and beyond. Students benefit from opportunities to learn outside the classroom from professional guest artist-led workshops to attending performances and exhibitions presented by cultural institutions including the Clarice Smith Performing Arts Center, The Kennedy Center, neighborhood art institutions such as Pyramid Atlantic and renowned art museums including the Smithsonian Institute. Students can participate in service-learning, and can choose to develop an arts capstone project based on their particular creative interests.

## Jiménez-Porter Writers' House

Queen Anne's Hall
Phone: 301-405-0671
JPWritersHouse@umd.edu
http://writershouse.umd.edu

**Director:** Ross Angelella

The Jiménez-Porter Writers' House (JPWH) is a living-learning program open to all majors. The program was conceived and developed primarily for upper-division students, but will consider applications from academically talented incoming freshmen who have a solid focus on creative writing. Located in Queen Anne's Hall, the Writers' House creates a campus-wide literary center to study creative writing especially in its cross-cultural dimensions. Participants live in a close community of students who share an interest in creating stories, poems, plays, and screenplays. Students meet with visiting writers, publish a literary magazine, attend special readings and colloquia, attend an annual literary festival, and receive notation upon successful completion of the program. Our curriculum includes two 1-credit workshop classes and supporting one 3-credit class in the first year, a 3-credit workshop and 3-credit capstone course in the second year. Class sizes are small, and many include one-on-one faculty advising sessions. Students are allowed and encouraged to explore different genres between classes. The size of the program allows participants to form a strong and diverse community, with 50 to 60 students living and writing together each year. Applications can be submitted at http://apply.arhu.umd.edu, or by visiting http://writershouse.umd.edu. Final deadline for admission every year is March 1st for currently enrolled University of Maryland students, May 1st for transfer students and incoming freshmen.

## Design Cultures & Creativity

Phone: 301-405-2866
dcc-honors@umd.edu
https://dcc.umd.edu
Instagram: @umd_dcc

**Director:** Damien Pfister, Ph.D.

Design Cultures & Creativity (DCC) is an Honors College living-learning program that takes creativity seriously as an impulse, an intentional practice, and a mechanism of survival. We aim to offer courses, resources, and opportunities to help students emerge from university not only with interesting things to *say* about the world, but also the imagination, tools, habits, and confidence to build new ones. Situated at the productive collision of arts and technology, DCC fosters an open, collaborative, and social environment that encourages students to explore relationships between design, culture, and creativity and confront

the world with new, innovative, and groundbreaking ideas for a brighter, safer tomorrow for all. We are passionate about emerging technologies and their impact on the world and its people and, even more importantly, how our designs can make our worlds a better place for humans and all other living things to thrive. DCC students are innovative thinkers *and* makers who engage in research and collaborative projects that engage issues pertaining to identity, connectivity, social justice, art, design, and all things creative in an era when digital tools and media link us on a scale unprecedented in human history.

### Language House

0107 St. Mary's Hall
Phone: 301-405-6996
mmatar@umd.edu
http://sllc.umd.edu/special-programs/language-house/

**Program Director:** Marilyn Matar, Ph.D.

The Language House Immersion Program, established as the pioneering living-learning initiative at the University of Maryland, welcomes students from all majors wishing to immerse themselves in the study of languages and cultures. The program features eleven language clusters: Arabic, Chinese, French, German, Hebrew, Italian, Japanese, Korean, Persian, Russian, and Spanish. Participants reside in St. Mary's Hall apartments alongside other members of their cluster, committing to exclusive use of their target language and maintaining an immersive environment throughout daily activities, studies, and social interactions at the Language House (LH).

In this immersive setting, each language cluster collaborates with a native-speaking mentor who organizes interactive cluster activities, including field trips, cooking sessions, film or game nights, and interviews with native speakers, enabling students to explore various facets of the target language and cultures. Additionally, Faculty Liaisons from the School of Languages, Literatures, and Cultures (SLLC) engage with students in each language cluster.

LH students participate in the SLLC329 Language House Immersion course, which accounts for their engagement in the program and cluster activities. They must also enroll in at least one 3-credit course aligned with their language of study within the SLLC during each semester of their program participation. Furthermore, LH residents participate in events, such as intercultural lectures, international film series, Language and Career activities, and weekly conversation tables. These activities contribute to fostering a dynamic and interactive environment, enriching the overall global LH experience.

Students who successfully fulfill the LH requirements are eligible to receive a micro-credential from UMD - the "Badge in Language, Culture, and Communication"- which acknowledges and validates their immersive experience within the program and beyond.

## College Honors Program

Most departments in the College of Arts and Humanities offer Departmental Honors Programs (DHP). DHPs are upper-division programs within the individual academic units. Students enrolled in Departmental Honors work independently with faculty members in subjects of special interest, develop and deepen their research skills, and, in the process, earn an even stronger degree. Students must have a cumulative GPA of at least 3.0 to be admitted. For further information about individual Departmental Honors Programs and policies, consult with departmental advisors.

## Departments and Centers

### Academic Computing Services

1111 Francis Scott Key Hall
Phone: 301-405-2104

**Assistant Dean:** Kathleen R. Cavanaugh

Academic Computing Services (ACS) supports the use of technology by faculty, staff, and students in the College of Arts and Humanities. ACS provides IT support services for faculty and staff, support for the use of technology to support teaching, learning and research, web and application development for ARHU schools and departments, and classroom technology support services in ARHU's departmental instructional spaces.

### African American Digital and Experimental Humanities Initiative (AADHUM)

1104 Taliaferro Hall
aadhum@umd.edu
http://aadhum.umd.edu

**Principal Investigator:** Marisa Parham
**Director:** Marisa Parham
**AADHum Team:** Andrew W. Smith, Alice Bi, Christin Washington, Elizabeth M. Alexander, Grace Babukiika, Jeffrey Moro, Katelin Ten, Kola Heyward-Rotimi, Lillian-Yvonne Bertram, Marisa Parham, and Trevor Muñoz, director of MITH

AADHum is a research and humanities design collaborative that focuses both on digital studies- producing scholarship that evaluates and extends investigation into the histories and impacts of digital technologies on Black lifeworlds, and also Black digital humanities- designing and developing projects that actively name Blackness in the production and implementation of digital or experimental technologies. In our support of Black Study at Maryland and beyond, we foster digital and experimental scholarly publishing and creative-making at all levels. Our public research programming includes microgrant opportunities for undergraduate students, residencies for grad students, senior scholars, and collaborators, and workshops and depth-conversations for all interested folks at UMD, in our local communities, and beyond.

### University of Maryland Art Gallery

1202 Parren J. Mitchell Art-Sociology Building
3834 Campus Drive
College Park, MD 20742
Phone: 301-405-2763
artgallery@umd.edu
http://artgallery.umd.edu

**Director:** Taras W. Matla

The University of Maryland Art Gallery collects, displays, and interprets art from diverse cultures. Its exceptional teaching collection-- ranging from antiquity to the present-- allows students, faculty, and the surrounding community to learn about art from around the world in one building. Opportunities for museum training and arts management experience are available to students through graduate assistantships and work-study positions.

## David C. Driskell Center for the Study of the Visual Arts and Culture of African Americans and the African Diaspora

1214 Cole Student Activities Building
Phone: 301-314-2615
driskellcenter@umd.edu
http://driskellcenter.umd.edu

**Director:** Jordana M. Saggese, Ph.D.

The David C. Driskell Center for the Study of the Visual Arts and Culture of African Americans and the African Diaspora at the University of Maryland, College Park, honors the legacy of David C. Driskell (1931-2020) - Distinguished University Professor Emeritus of Art, Artist, Art Historian, Collector, and Curator - by preserving the rich heritage of African American visual art and culture. Established in 2001, the Center provides an intellectual home for artists, museum professionals, art administrators, and scholars who are interested in broadening the field of African Diasporic studies with its collection of nearly 2,000 original art objects, an expanding archive of primary sources related to the study of African American art, a library of rare catalogs and other books, and a dedicated study room by the artist Faith Ringgold. The Driskell Center is committed to collecting, documenting, and presenting African American art as well as replenishing and expanding the field. Exhibitions and other events in its gallery space enrich the intellectual and artistic community of both the university campus and the wider community.

## Consortium on Race, Gender, and Ethnicity (CRGE)

Harriet Tubman Department of Women, Gender and Sexuality Studies
Susquehanna Hall
4200 Lehigh Rd. Room 4117
College Park, Maryland 20742
Phone: 301-405-5223
http://crge.umd.edu

**Director:** Ruth Enid Zambrana, Ph.D., Distinguished University Professor

The Consortium on Race, Gender and Ethnicity (CRGE), a university-wide, interdisciplinary research organization and pedagogic/mentoring unit, was founded in 1998 by pioneering faculty Dr. Bonnie Thornton Dill and cofounder Dr. Ruth Enid Zambrana who developed a critical area of intersectional scholarship in the contemporary academy. CRGE is the first national interdisciplinary and intersectional research center of its kind and is at the forefront of advancing equity, inclusion, intersectional qualitative, and mixed-methods research on campus and across the nation. We are uniquely focused on intersectional research and uplifting and mentoring traditionally and historically underrepresented minority (URM) and other disadvantaged students of color and early career faculty.

Why are we important to the UMD campus?

- Building human capital and promoting equity is at the core of our mission and programmatic activities.
- Interdisciplinary scholarship and collaboration are the driving forces of our research-building efforts.
- Qualitative and mixed methodologies form a central core of our expertise.
- Combining efforts with other units enhances the academic pathways of students and faculty, particularly URM.

CRGE has three unique dimensions that distinguish it from other campus units: focus on the intersections of race, ethnicity, gender, class and other dimensions of inequality as they shape the construction and representation of identities, behavior and complex social relations; commitment to qualitative research interests that illustrate the lived experiences of race/ethnic groups and showcase scholars' innovative research methodologies and interdisciplinary collaborations; and engagement in the research pathways of students and faculty to contribute to the next generation of historically and traditionally underrepresented and disadvantaged students of color, scholars and leaders.

Our intersectional scholarship examines the lived experiences of URM and other social and economically disadvantaged populations in public health, medicine, urban and rural low-income communities, and higher education sectors. Our work has investigated the role of mentoring of URM groups and their experiences in the pathway from college through early-career faculty and the role of discriminatory institutional practices on URM faculty health and well-being. Programming seeks to apply effective, equitable, and responsive practices to increase the retention and promotion of URM students and faculty. We sponsor intersectional dissertation research seed grants in partnership with the Office of Graduate Diversity and Inclusion (OGDI), and conduct a national summer Intersectional Qualitative Research Methods Institute (IQRMI) (for early-career faculty on the UMD campus and cosponsor one for advanced graduate students at University of Texas at Austin). CRGE has university-wide intersectional faculty affiliates who are committed to social justice and are active in the community and nationwide efforts to advance gender, race, and ethnic relations through intersectional research.

As a first-class intersectional scholarship-driven center, CRGE is dedicated to understanding the intersections of inequality, inequity and social justice and serves as a national example of a thriving and inclusive environment for critically engaged scholars whose research informs solutions to significant social and economic policy concerns.

## Center for Innovative Teaching and Learning (CITL)

1202 Jiménez Hall
Phone: 301-405-4925
Fax: 301-314-9752
sllc@umd.edu
http://sllc.umd.edu/citl/

**Instructional Designer:** Janel Brennan-Tillmann

The Center for Innovative Teaching and Learning (CITL) is a unit within the School of Languages, Literatures and Cultures whose mission is to enhance and support excellence in teaching, learning and research. The Center provides equipment, web support, training, and instructional design for SLLC faculty and staff as well as Big 10 Academic Alliance CourseShare courses.

Consultation services are available for course development, assessment, hybrid and blended course redesign, distance learning (via teleconference or Zoom), grant support, and digitization of course and research materials.

# American Studies

**College of Arts and Humanities**
1328 Tawes Hall
Phone: 301-405-1354
americanstudies@umd.edu

http://amst.umd.edu

The program in American Studies aims to help students develop knowledge about American society and culture that is critical, contextual, and informed by a high degree of personal awareness. We emphasize two broad themes that inform the department's teaching and research: the social construction of difference and the culture of everyday life. The former speaks to the ways in which people and groups create and sustain their identities and affiliations; the latter focuses on patterns of belief and value that give form and meaning to the lived experience of Americans, past and present.

# PROGRAMS

## Major

- American Studies Major (p. 150)

## Minor

- U.S. Latina/o Studies Minor (p. 151)

# ADVISING

Advising in American Studies is mandatory every semester for all majors. Students pursuing the major should review the academic benchmarks established for this program. See: http://4yearplans.umd.edu. Students will be periodically reviewed to ensure they are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

# OPPORTUNITIES

## Undergraduate Research Experiences

Majors in American Studies complete a research project for the senior seminars, AMST340 and AMST450. They are encouraged to gain additional research experience by working with individual faculty members and advanced graduate students or participating in one of the Department's Working Groups. See the Department website for more information about research: http://amst.umd.edu.

## Internships

Juniors and seniors with a 2.5 GPA or better may apply 3 credits of internship (AMST386) to the 42 credits required for the major. Students must consult with a faculty advisor about a prospective internship prior to registration and complete and sign an internship contract. All internships must have an approved academic component. For further information, contact the Undergraduate Studies Director.

## Honors Program

The departmental honors program offers outstanding students an opportunity to add distinction to their academic records by undertaking an independent research project in an area of particular interest to them.

The program is intended to allow students preparing for graduate study or a professional career to apply and further develop their research, analytic, and writing skills in an independent project of their own design, in consultation with a faculty mentor. Students are encouraged to make use of the rich resources of the Washington-Baltimore area, including major research institutions such as the Smithsonian Institution, the Library of Congress, and the National Archives.

Students in the honors program take two honors-designated courses and two semesters of AMST388 Honors Thesis, a total of twelve credits. Students enrolled in honors are excused from AMST450 Senior Seminar. These requirements fit *within the 42 credits required to complete the major. Participation in honors does not require additional coursework beyond the required 42 credits.*

**Eligibility:** Students must have at least a 3.0 cumulative GPA at the time of entry into the program, and must maintain a minimum 3.0 GPA overall to remain in good standing. To graduate with honors in American Studies, students must have a 3.0 cumulative GPA and a GPA of 3.2 or higher in their major coursework.

**Application:** Students who wish to pursue Honors work should contact the Director of Undergraduate Studies at 301-405-1354 during their junior year to discuss the program and application procedures.

## Scholarships and Financial Assistance

The department awards the David Ellis Memorial Scholarship annually. For information and requirements, contact the American Studies office (301-405-1354).

The College of Arts & Humanities also has scholarship opportunities (https://arhu.umd.edu/academics/undergraduate-studies/scholarships-and-academic-honors/) available to students.

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For more information, visit: http://financialaid.umd.edu.

## Awards and Recognition

The department recognizes outstanding accomplishments by undergraduates at its commencement ceremony. Monetary prizes are awarded to the graduate with the highest cumulative GPA, to the author of the best Honors thesis, and to a graduate who has provided exceptional service to the campus or the community. The department also awards the Savneet Talwar Best Senior Paper Prize to an undergraduate who has authored an outstanding senior paper.

# American Studies Major

**Program Director:** Asim A. Ali, Ph.D.

American Studies provides students with a flexible, coherent, and interdisciplinary program of study. We focus on the cultures of everyday lives and cultural constructions of identity and difference in Americans' lives, past and present, in a transnational and global framework. The B. A. degree prepares students for graduate work or careers in fields such as law, government and social policy, media, non-profit and social justice organizations, cultural institutions, education, and business. The department provides opportunities for internships, research, study abroad, and departmental honors. Each student meets every semester with a faculty advisor to plan an individualized course of study tailored to each student's interests and goals. American studies is a small department with a friendly atmosphere, faculty dedicated to teaching, and an excellent national academic reputation. Courses offered by the Department of American Studies may be found under the acronym AMST.

## Admission to the Major

Students interested in declaring the American Studies major should make an appointment with the undergraduate program director.

## Program Learning Outcomes

Students are expected to engage fully with the curriculum, faculty, their fellow students, and the opportunities available for learning and research. Upon completion of the degree program, students will have demonstrated an understanding of multiple dimensions of diversity, possess the ability to answer research questions by using appropriate American Studies methodologies, and have acquired the following knowledge and skills:

1. Understanding and applying interdisciplinary theories and methods.
2. Understanding American Studies as a field, including current and emerging issues.
3. Understanding of cultural literacy, including visual, textual and cybercultural literacies.
4. Understanding the political and historical dimensions of culture.
5. Understanding the importance of cultural diversity in American society.
6. An ability to connect classroom and extracurricular learning in fostering active, engaged citizenship.

## REQUIREMENTS

The major in American Studies requires a minimum of 42 credits distributed as follows:

| Course | Title | Credits |
|---|---|---|
| College Requirement (p. 145) | | |
| AMST101 | Introduction American Studies (required of all majors) | 3 |
| Select one AMST 1xx or 2xx level course, e.g. the following: [1] | | 3 |
| AMST202 | Cultures of Everyday Life in America | |
| AMST203 | Popular Culture in America | |
| AMST204 | Film and American Culture Studies | |
| AMST205 | Material Aspects of American Life | |
| AMST207 | | |
| AMST212 | Diversity in American Culture | |
| AMST260 | American Culture in the Information Age | |
| AMST298 | Selected Topics in American Studies | |
| Select two Americanist Foundation courses from a list of approved choices [1, 2] | | 6 |
| Select four 3xx or 4xx-level AMST courses | | 12 |
| AMST340 | Introduction to History, Theories and Methods in American Studies [3] | 3 |
| AMST450 | Seminar in American Studies [3] | 3 |
| Select a Focus Area [4] | | 12 |
| **Total Credits** | | **42** |

[1] Some or all of the 2xx-level courses may also fulfill General Education Requirements.

[2] Americanist Foundation courses are 1xx or 2xx-level courses in departments such as AASP, ARTH, ENGL, HIST, SOCY, and WMST. (The current list of courses approved for the requirement is posted on the department's web site: www.amst.umd.edu (http://www.amst.umd.edu))

[3] AMST340 and AMST450 constitute a sequence emphasizing independent research based on original sources and culminating in a senior thesis. AMST340 is a prerequisite for AMST450 and must be completed before enrollment in the senior seminar. The sequence is usually taken in the student's senior year.

[4] A Focus Area consisting of four 3xx or 4xx-level courses in another department or university approved minor. (A list of suggested Focus Areas can be found on the department's web site: www.amst.umd.edu (http://www.amst.umd.edu).)

**Notes:**

- At least twelve of the 3xx or 4xx level credits must be at the 4xx level.
- A grade of C- or better is required in every course submitted in fulfillment of major requirements.
- An overall GPA of 2.0 in the major is required for graduation.

## GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# U.S. Latina/o Studies Minor

**College of Arts and Humanities**
Department of American Studies
1328 Tawes
Phone: 301-405-1354
http://amst.umd.edu/academic-programs/undergraduate/us-latina-o-studies-minor/

**Program Director:** Nancy Mirabal, Ph.D.

The minor, which requires a total of 15 credits, is intended for students who wish to develop a specialization in U.S. Latina/o Studies alongside their degree pursuits. It is advantageous for students engaged in work with U.S. Latina/o communities in a variety of professions and academic fields including American studies, history, literature, education, non-profits, urban studies and planning, health care, social services, business, government, and public policy, among others.

To make an appointment to explore or declare a minor, go to http://arhu.umd.edu/academics/undergraduate-studies/minors/.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Foundation Courses** | | |
| USLT201 | U.S. Latina/o Studies I: An Historical Overview to the 1960's | 3 |
| USLT202 | US Latina/o Studies II: A Contemporary Overview 1960's to present | 3 |
| USLT488 | US Latina/o Senior Seminar | 3 |
| **Elective Courses** | | |

| | |
|---|---|
| Two 3xx or 4xx level courses [1] | 6 |
| **Total Credits** | **15** |

[1] The elective courses will come from two of the following categories: Humanities, Social Sciences, Languages, and Education. For these electives, students can choose USLT498 Special Topics in U.S. Latina/o Studies and from a list of pre-approved courses offered through other departments or programs. Elective courses will explore the historical, cultural, political, economic, and sociological dimensions of U.S. Latina/o experiences. These courses will be approved by the faculty advisory committee. Additional courses that include comparative U.S. Latino content, such as in LASC or GVPT, would be eligible for inclusion in the minor with the approval of the USLT advisor.

No course grade below the grade of "C-" may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

# Art

**College of Arts and Humanities**
1211-E Parren J. Mitchell Art-Sociology Building
Phone: 301-405-7790
artdept@umd.edu
http://art.umd.edu

The Department of Art offers a Bachelors of Art degree with courses in the areas of painting, sculpture, digital media, printmaking, video, art theory, and graphic design. Students enter the program with an intensive foundations program which focuses on the fundamentals of composition in both two and three-dimensional applications. Upon completing the foundations courses, students are encouraged to experiment and expose themselves to all of the various media offered by the department, or apply to a limited-enrollment Graphic Design Concentration. All art and design students are expected to develop strong creative voices based upon an understanding of contemporary critical theory as well as an in-depth understanding of the technical skills needed to create compelling contemporary art and design.

In addition, there are numerous opportunities for students in the program to extend their involvement in the major and in the arts. A wide variety of internship opportunities are available, as well as opportunities to work in the Herman Maril Gallery, the department's student-run gallery. These students have the opportunity to organize and curate exhibitions of the work of other students in the department.

# PROGRAMS

## Major

- Immersive Media Design Major (ARTT) (p. 153)
- Studio Art Major (p. 155)

# ADVISING

## Departmental Advising

The department has a single advisor for Studio Art Majors:

**Emily Conover**
Parren J. Mitchell/Art-Sociology Building
1st mezzanine between 1st & 2nd floors of the studio art classrooms, Rm. 1M322
Phone: 301-405-9408
econover@umd.edu
To schedule an appt: http://econover714.youcanbook.me

Students in the Graphic Design Concentration should contact **Prof. Antwon Key** for advising: adkey@umd.edu.

You can also contact Undergraduate Administrative Assistant, Jarica Nowlin (301-405-7790 or jnowlin@umd.edu) if you have questions. Each second-semester sophomore and first-semester senior is required to meet with their advisor.

Students are strongly encouraged to see their advisor in the department annually.

## College Advising

To schedule an appt. with ARHU advising: http://go.umd.edu/ARHUscheduling (https://arhu.umd.edu/academics/advising/)

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

# OPPORTUNITIES

## Undergraduate Research Experiences

A variety of undergraduate research and/or internship experiences are available. Please go to Department of Art website for more information: http://art.umd.edu.

## Fieldwork Opportunities

A variety of undergraduate fieldwork and/or internship opportunities are available. Please go to Department of Art website for more information: http://art.umd.edu.

## Internships

Students have worked in a variety of internship settings. These have included assisting professionals with public commissions, commercial or cooperative gallery and exhibition duties, and working in professional artists' workshops in the Baltimore and Washington, D.C. metropolitan areas. The Graphic Design concentration maintains a variety of internship connections with the professional design communities from Baltimore to Washington, D.C. Additional information is available in the Department of Art office or on the website http://art.umd.edu.

## Honors Program

The Departmental Honors Program provides Art majors with opportunities for in-depth study and enrichment in areas of special and creative interest. Students are admitted to this program by competitive portfolio review. To qualify, students must be Art majors with junior or senior status, a major GPA of 3.2, and an overall GPA of 3.0. The program requires a total of 12 credits in Honors course work, and is completed over the student's senior year. Two courses (3 credits each) may be taken at the 3xx- or 4xx-level, and two courses (3 credits each) at the 4xx-level. There is a thesis component in one of the 4xx-level courses and includes a Thesis Exhibition in the Herman Maril Gallery.

Please consult the department website (https://art.umd.edu/academic-programs/honors-programs/) and/or the Honors Director (Prof. Keener (cykeener@umd.edu)) for additional information.

## Student Societies and Professional Organizations

The Student Art League is an active student organization that encourages membership and participation for all majors. Art majors participate in many campus-wide organizations.

## Scholarships and Financial Assistance

The Department of Art administers eight Creative and Performing Arts Scholarships (CAPAs) that are available to continuing students as well as entering freshman or transfer students. This is a merit-based scholarship that is awarded on a one-year basis and may be renewed. Additional information is available in the main office of the department. The Van Crews Scholarships and Clarvit Scholarships are designated for outstanding Art majors concentrating in Graphic Design. Further details are available on the department website: http://art.umd.edu.

## Awards and Recognition

Each semester the faculty votes for students to receive 1st, 2nd, and 3rd place cash prizes for the James P. Wharton Award, given at graduation. Students are given the awards based on works exhibited in the Graduating Seniors Exhibition in the Herman Maril Gallery.

When funds are available, the department holds a competition for the John Dorsey Prize for Curatorial Excellence. The winner receives a cash award and funds towards the production of a curated exhibition in the Herman Maril Gallery.

Other awards and scholarships are given on an intermittent basis, depending on the funding.

For more information, go to the department website: http://art.umd.edu.

# Immersive Media Design Major (ARTT)

**Program Director:** Roger D. Eastman, Ph.D.

The Immersive Media Design major is jointly offered by the Departments of Computer Science in the College of Computer, Mathematical, and Natural Sciences and Art in the College of Arts and Humanities.

Through this unique cross-campus alliance of expert faculty members and resources at the University of Maryland, the Immersive Media Design major provides the scientific and scholarly foundations needed to advance the extraordinary potential of new and emerging forms of digital media. These new forms move beyond the usual flatscreen of laptops and desks to immerse the user in new and complex virtual environments, such as virtual reality, augmented reality, projective domes and spaces, interactive installations and sculptures, and tangible computing.

Mastering these new media requires knowledge of technology and art. Immersive Media Design students will complete multiple collaborative studio courses in which they collaborate on teams to get hands-on experience and mentoring in building immersive media works, preparing them to work in fields as diverse as health care, education, industrial training and design, marketing and advertising, art, and more.

The major has two different tracks of academic study. Track One (Computing-Creative Coders) focuses on the implementation and creation of computer science methods used in the creation of immersive media. Track Two (Art-Emerging Creatives) focuses on content creation and concept exploration from an aesthetic and artistic standpoint. Students who complete Track One will receive a B.S. in Immersive Media Design. Students who complete Track Two will receive a B.A. in Immersive Media Design.

## Admission to the Major

The Immersive Media Design major is a Limited Enrollment Program. Please see the admission requirements and procedures at http://lep.umd.edu.

## Program Learning Outcomes

1. Technical proficiency, skill, and contextual knowledge of immersive media technologies, products, and applications so as to produce physical and digital works that are technically proficient, aesthetically engaging, and which demonstrate conceptual sophistication.
2. Deep learned cross-disciplinary problem-solving and collaborative skills in both technical and creative arenas.
3. Knowledge and proficiency in user-centered practices as they pertain to the development and application of immersive media projects.
4. Capacity to adapt to new technologies, concepts and processes as well as anticipate new technical and conceptual developments in this emerging field.
5. Computing track: Technical proficiency in the development of coding structures and algorithms central to the practices of immersive media.
6. Computing track: Fluency in the methodologies of computer graphics programing for real-time and AR/VR contexts.
7. Computing track: Ability to create and implement user-facing tools and algorithms for immersive media design.
8. Computing track: Ability to critically evaluate and apply relevant areas of immersive media scholarship.
9. Computing track: Ability to anticipate and adapt to the advent of new technological concepts, methods and practices in the field.
10. Emerging Creatives track: Ability to effectively communicate ideas and concepts visually through the use of immersive media conventions.
11. Emerging Creatives track: Technical proficiency in common methods of content creation for immersive media such as creative coding, digital fabrication, physical computing, and 3-D modeling.
12. Emerging Creatives track: Ability to critically evaluate works of creative technology in terms of their formal, conceptual, historical and social impacts.
13. Emerging Creatives track: Ability to appropriately couple new technologies with traditional media in the creation of tangible immersive media projects.
14. Emerging Creatives track: Ability to market and promote ones work through portfolio development and business planning.

## REQUIREMENTS

Immersive Media Design majors complete a rigorous set of courses in Art (ARTT), Computer Science (CMSC) as well as Immersive Media (IMDM). The courses differ by track. Students in Track 1 (Computing) take introductory courses at the core of the Computer Science major, a common set of ARTT courses, and the IMDM sequence. Students in Track 2 (Art) take the core of the Art major, a set of introductory computing courses, and the IMDM sequence.

For students in Track 1 who are transferring to UMD, the Computer Science Department offers exemption exams for the required courses CMSC131, CMSC132, CMSC216 and CMSC250. Students who have had CS courses prior to starting at Maryland are encouraged to schedule and take exemption exams. These courses are not required for Track 2.

## Computing Track

| Course | Title | Credits |
|---|---|---|
| ENGL Elective (Choose one of the following): | | 3 |
| ENGL143 | Visualizing Knowledge: From Data to Images | |
| ENGL245 | Film Form and Culture | |
| ENGL255 | Literature of Science and Technology | |
| ENGL290 | Introduction to Digital Studies | |
| ENGL294 | Persuasion and Cleverness in Social Media | |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| CMSC131 | Object-Oriented Programming I | 4 |
| CMSC132 | Object-Oriented Programming II | 4 |
| CMSC216 | Introduction to Computer Systems | 4 |
| CMSC250 | Discrete Structures | 4 |
| CMSC330 | Organization of Programming Languages | 3 |
| CMSC351 | Algorithms | 3 |
| Major Elective: CMSC 4xx (Graphics Programming) | | 3 |
| CMSC Elective: CMSC 4xx (Graphics Programming) | | 3 |
| ARTT100 | Two-Dimensional Design Fundamentals | 3 |
| ARTT200 | Three-Dimensional Art Fundamentals | 3 |
| ARTT255 | Introduction to Digital Art and Design Processes | 3 |
| Major Elective: ARTT37x/47x (Digital Media) | | 3 |
| IMDM101 | Introduction to Immersive Media | 3 |
| IMDM150 | Digital Media Theory and Culture | 3 |
| IMDM227 | Introduction to Computational Media | 3 |
| IMDM290 | Collaborative Studio I: Image + Time | 3 |
| IMDM327 | Computational Virtual Reality (Augmented and Virtual Reality) | 3 |
| IMDM390 | Collaborative Studio II: Experiential Computing | 3 |
| IMDM490 | Senior Capstone I (Capstone I) | 4 |
| IMDM491 | Senior Capstone II (Capstone II) | 4 |
| **Total Credits** | | **77** |

## Emerging Creatives Track

| Course | Title | Credits |
|---|---|---|
| ENGL Elective (Choose one of the following): | | 3 |
| ENGL143 | Visualizing Knowledge: From Data to Images | |
| ENGL245 | Film Form and Culture | |
| ENGL255 | Literature of Science and Technology | |
| ENGL290 | Introduction to Digital Studies | |
| ENGL294 | Persuasion and Cleverness in Social Media | |
| MATH115 | Precalculus | 3 |
| CMSC122 | Introduction to Computer Programming via the Web | 3 |
| ARTT100 | Two-Dimensional Design Fundamentals | 3 |
| ARTT110 | Elements of Drawing I | 3 |
| ARTT200 | Three-Dimensional Art Fundamentals | 3 |
| ARTT210 | Elements of Drawing II | 3 |
| ARTT255 | Introduction to Digital Art and Design Processes | 3 |
| ARTT370 or ARTT371 | Elements of Digital Media | 3 |
| ARTT47X | (Advanced Digital Media Choice: 479a/c/d/e) | 3 |
| IMDM101 | Introduction to Immersive Media | 3 |
| IMDM127 | Creative Coding for Digital Media | 3 |
| IMDM150 | Digital Media Theory and Culture | 3 |
| IMDM227 | Introduction to Computational Media | 3 |
| IMDM290 | Collaborative Studio I: Image + Time (Collaborative Studi I - Image + Time) | 3 |
| IMDM350 | Advanced Digital Media Theory | 3 |
| IMDM390 | Collaborative Studio II: Experiential Computing | 3 |
| IMDM490 | Senior Capstone I (Capstone I) | 4 |
| IMDM491 | Senior Capstone II (Capstone II) | 4 |
| **Total Credits** | | **59** |

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# ADVISING

## Prospective Students

Immersive Media Design is able to work with current, and prospective, University of Maryland students who may be interested in the program to see if the program meets their personal, academic, and career goals. Students with questions should email imd@umd.edu.

## Current Students

Students are assigned an academic advisor after the schedule adjustment period. Prior to being assigned an advisor students are encouraged to email imd@umd.edu with any questions, comments, or concerns. After a student is assigned an academic advisor within Immersive Media Design, they should email their assigned advisor. The assigned advisor will work with students throughout their time in Immersive Media Design from their first-year through graduation. All students in Immersive Media Design are required to meet with their assigned academic advisor every semester. Students make advising appointments via their TerpEngage Community (https://terpengage.umd.edu/community/s/) portal.
Students pursuing the Bachelor of Arts are required to meet with an advisor within the College of Arts and Humanities. To learn more, please visit their advising webpage (https://arhu.umd.edu/academics/advising/).

## Academic Plans

- Computing B.S. (https://imd.umd.edu/sites/default/files/2023-05/2305%20IMDM%20Computing%20Graduation%20Plan.pdf)

- Emerging Creatives B.A. (https://imd.umd.edu/sites/default/files/2023-05/2305%20IMDM%20Emerging%20Creatives%20Graduation%20Plan.pdf)

# Studio Art Major

**Program Director:** Brandon Morse

The Department of Art provides its students with the technical and conceptual tools needed to make innovative contributions to a visual culture in which traditional boundaries between the visual arts, design, film, video, and architecture have become increasingly blurred. The accomplished faculty members bring their professional experiences to the studio, providing a contemporary context for the development of skills and ideas. The department's creative environment encourages creative problem solving, interdisciplinary experimentation, and the production of images, objects, and experiences that reflect a sophisticated visual literacy. From a shared foundation emphasizing traditional fundamentals of art and design, students move into media concentrations that encourage interdisciplinary interaction, particularly in developing digital technologies. This flexible interaction between traditional and new media is central to the department's vision and the success of its mission.

In a society that increasingly defines itself in visual terms, artists and designers are critical in shaping its future. The creative atmosphere of the Department of Art's studios is a fertile ground for the development of the complex skills and ideas needed to navigate and contribute to an evolving visual culture. Our location, just outside Washington, DC, and less than an hour away from Baltimore provides access to numerous museums, galleries, embassies and international institutions, which brings important real-world experience to students in our program.

## Admission to the Major

The Department of Art offers three tracks to the B.A. degree. Track 1 is an open major, which requires no portfolio review, and requires 48 total credits for completion. All majors enter the department in Track 1.

Tracks 2 and 3 are specialized tracks with portfolio reviews for admission in the junior and senior years, and require 60 total credits for completion. Track 2 is for a B.A. with an Advanced Specialization in Digital Media, Painting, Printmaking, Sculpture, or Intermedia. Track 3 is for a B.A. with a concentration in Graphic Design.

See the department website for more information: http://art.umd.edu.

## Placement in Courses

With appropriate AP or IB credit and scores, students may receive credit for ARTT100, ARTT110, or both. Contact department advisors for more information.

## Program Learning Outcomes

1. Students will be able to demonstrate an ability to manipulate form and content to produce artwork with visual integrity that expresses concepts coherently.
2. Students will be able to demonstrate inventiveness and creativity.
3. Students will be able to produce work that reflects concerns in contemporary visual art, including social, political and historical issues centered around diversity, equity and inclusion towards a broader understanding of the discipline in society.
4. Students will be able to produce artworks that display excellent quality in presentation.

## REQUIREMENTS

The Department of Art offers three tracks to a Bachelor of Arts degree (B.A.). All majors enter the Department in Track 1, the open B.A., and take a required group of six Foundation courses (18 credits). After completion of the Foundation courses, students may continue in Track 1 without portfolio review, or choose to submit a portfolio of work completed in Track 1 courses for admission into Track 2 or Track 3. Portfolio reviews for both specializations will take place during the spring semester, usually during late March.

- **Track 1: B.A. in Studio Art.** This is an open program with no portfolio admission requirement. This track provides ample space for outside electives, encourages interdisciplinary interaction, and provides double major or double degree possibilities. The Art Education Curriculum works with Track 1. Credit requirements: 36 credits in Studio Art, and 12 credits in supporting courses in Art History and/or Art Theory, for a total of 48 credits.
- **Track 2: B.A. in Studio Art with Advanced Specialization.** This track is restricted to students admitted by competitive portfolio review, and is aimed at students who envision graduate study or professional careers in art. Students accepted into this track will complete, in addition to the requirements for Track 1, a 12 credit advanced specialization in specific media areas, including ARTT481 Advanced Specialization Seminar. Areas of specialization include: Digital Media, Painting, Printmaking, Sculpture, and Intermedia. Credit requirements: 48 credits listed in Track 1 plus 12 credits in Advanced Specializations, for a total of 60 credits.
- **Track 3: B.A. in Studio Art with a concentration in Graphic Design.** This track is restricted to students admitted into the Graphic Design concentration through a competitive portfolio review. This program provides a pre-professional orientation emphasizing interactive design, graphic design theory, and interdisciplinary research. Students accepted into the Graphic Design program must complete a specific sequence of courses at both the 3xx- and 4xx-level. Graphic Design courses are only available to students who have been admitted to the Graphic Design concentration. Credit requirements: 21 credits in Foundation and studio art electives, and 12 credits in supporting courses in Art History and/or Theory (ARTT361 Design Literacy: Decoding Our Visual Culture, a Graphic Design Concentration requirement, satisfies 3 credits of the supporting area for Graphic Design students) for a total of 60 credits.

Students interested in Track 2 may apply after the completion of at least two 3xx-level courses, plus completion or enrollment in at least one 400-level ARTT course. Students may re-apply one time.

Students interested in Track 3 must have completed or be enrolled in the required Foundation courses to apply to the specialization. The strict course requirements in Graphic Design make early application to Track 3 optimal. Students may re-apply one time.

Transfer students who have completed courses equivalent to the Foundation and intermediate courses at UMCP may apply immediately to Tracks 2 or 3 if they choose.

These are competitive programs with a limit of approximately 20 new students per year in the combined Art areas, and approximately 20 students per year in Graphic Design. For information about the Portfolio

review process for Tracks 2 and 3 please see the Department of Art website.

No course grade below the grade of C- may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

# Track 1: B.A. in Studio Art

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Foundation Courses** | | |
| ARTT100 | Two-Dimensional Design Fundamentals | 3 |
| ARTT110 | Elements of Drawing I | 3 |
| ARTT150 | Introduction to Art Theory | 3 |
| ARTT200 | Three-Dimensional Art Fundamentals | 3 |
| ARTT210 | Elements of Drawing II | 3 |
| ARTT255 | Introduction to Digital Art and Design Processes | 3 |
| **Intermediate Courses** | | |
| Choose three courses total from at least two areas of the following: | | 9 |
| Painting: | | |
| ARTT320 | Elements of Painting | |
| Sculpture: | | |
| ARTT330 | Elements of Sculpture: Metal Casting | |
| ARTT331 | Elements of Sculpture: Steel | |
| ARTT333 | Elements of Sculpture: Wood and Mixed Media | |
| Printmaking: | | |
| ARTT340 | | |
| ARTT341 | Elements of Printmaking: Woodcut and Relief | |
| ARTT343 | Elements of Printmaking: Screen Printing | |
| Digital Media: | | |
| ARTT370 | Elements of Digital Media | |
| **Advanced Courses** | | |
| Select one 3xx-level ARTT elective | | 3 |
| Select one 4xx-level ARTT elective | | 3 |
| Select one 4xx-level ARTT or Art Theory elective | | 3 |
| **Supporting Area** | | |
| 200 level or above ARTH that satisfies a GenEd Diversity Requirement | | 3 |
| 200 level or above ARTH that satisfies a GenEd Diversity Requirement | | 3 |
| Select two 3xx-/4xx-level ARTH or Art Theory electives [1] | | 6 |
| **Total Credits** | | **48** |

[1] Department recommends ARTH351: Twentieth Century 1945 to present

# Track 2: B.A. in Studio Art with an Advanced Specialization

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Foundation Courses** | | |
| ARTT100 | Two-Dimensional Design Fundamentals | 3 |
| ARTT110 | Elements of Drawing I | 3 |
| ARTT150 | Introduction to Art Theory | 3 |
| ARTT200 | Three-Dimensional Art Fundamentals | 3 |
| ARTT210 | Elements of Drawing II | 3 |
| ARTT255 | Introduction to Digital Art and Design Processes | 3 |
| **Intermediate Courses** | | |
| Choose three courses total from at least two areas of the following: | | 9 |
| Painting: | | |
| ARTT320 | Elements of Painting | |
| Sculpture: | | |
| ARTT330 | Elements of Sculpture: Metal Casting | |
| ARTT331 | Elements of Sculpture: Steel | |
| ARTT333 | Elements of Sculpture: Wood and Mixed Media | |
| Printmaking: | | |
| ARTT340 | | |
| ARTT341 | Elements of Printmaking: Woodcut and Relief | |
| ARTT343 | Elements of Printmaking: Screen Printing | |
| Digital Media: | | |
| ARTT370 | Elements of Digital Media | |
| **Advanced Courses** | | |
| Select one 3xx-level ARTT elective | | 3 |
| Select one 4xx-level ARTT elective | | 3 |
| Select one 4xx-level ARTT or Art Theory elective | | 3 |
| **Supporting Area** | | |
| 200 level or above ARTH which satisfies a GenEd Diversity Requirement | | 3 |
| 200 level or above ARTH which satisfies a GenEd Diversity Requirement | | 3 |
| Select two 3xx-/4xx-level ARTH or Art Theory electives [1] | | 6 |
| Select an Advanced Specializaton: [1] | | 12 |
| Digital Media | | |
| Painting | | |
| Printmaking | | |
| Sculpture | | |
| Intermedia | | |
| **Total Credits** | | **60** |

[1] Advanced media courses ending in 8 or 9 are repeatable up to 12 credits.

## Digital Media

| Course | Title | Credits |
|---|---|---|
| ARTT479 | Advanced Digital Media Studio (two repeatable) | 6 |
| Select one of the following: | | 3 |
| ARTT479 | Advanced Digital Media Studio [1] | |
| ARTT353 | Elements of Photography | |
| ARTT449 | Advanced Photography Studio | |
| ARTT34x | An ARTT34x course | |
| ARTT448 | Advanced Printmaking Studio | |
| ARTT481 | Advanced Specialization Seminar [2] | 3 |
| **Total Credits** | | **12** |

[1] 3 cr. of ARTT498 may be substituted for ARTT479

[2] Track 2 students only. Students in Department Honors Program may substitute the Honors Seminar for this course.

### Painting

| Course | Title | Credits |
|---|---|---|
| ARTT428 | Advanced Painting Studio (three repeatable) | 9 |
| ARTT481 | Advanced Specialization Seminar [2] | 3 |
| **Total Credits** | | **12** |

[1] 3 cr. of ARTT498 may be substituted for ARTT479 cr.
[2] Track 2 students only. Students in Department Honors Program may substitute the Honors Seminar for this course.

### Printmaking

| Course | Title | Credits |
|---|---|---|
| Select one of the following: | | 3 |
| ARTT34x | An ARTT34x course | |
| ARTT448 | Advanced Printmaking Studio | |
| ARTT448 | Advanced Printmaking Studio (two repeatable) | 6 |
| ARTT481 | Advanced Specialization Seminar [2] | 3 |
| **Total Credits** | | **12** |

[1] 3 cr. of ARTT498 may be substituted for ARTT448 credit.
[2] Track 2 students only. Students in Department Honors Program may substitute the Honors Seminar for this course.

### Sculpture

| Course | Title | Credits |
|---|---|---|
| Select one of the following: | | 3 |
| ARTT33x | An ARTT33x course | |
| ARTT418 | Advanced Drawing Studio | |
| ARTT438 | Advanced Sculpture Studio | |
| ARTT438 | Advanced Sculpture Studio (two repeatable) | 6 |
| ARTT481 | Advanced Specialization Seminar [2] | 3 |
| **Total Credits** | | **12** |

[1] 3 cr. of ARTT498 may be substituted for 438 credit.
[2] Track 2 students only. Students in Department Honors Program may substitute the Honors Seminar for this course.

### Intermedia

| Course | Title | Credits |
|---|---|---|
| ARTT4xx | Advanced Studios (combination of inter-related courses) [1] | 9 |
| ARTT481 | Advanced Specialization Seminar [2] | 3 |
| **Total Credits** | | **12** |

[1] 3 cr. of ARTT498 may be used for 4xx credit.
[2] Track 2 students only. Students in Department Honors Program may substitute the Honors Seminar for this course.

## Track 3: B.A. in Studio Art w/ Concentration in Graphic Design

Intermediate and Advanced Graphic Design courses are restricted to students who have been accepted into the Design Concentration by an application process and competitive portfolio review. All Track 3 students must satisfy the following requirements:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Requirements** | | |
| Foundation courses listed in Track 1 BA | | 18 |
| Supporting Area courses listed in Track 1 BA [1] | | 9 |
| Select six credits of the following: | | 6 |
| ARTT386 | Experiential Learning | |
| ARTT45x | Graphic Design Electives | |
| Select six credits ARTT3xx / 4xx Art Electives | | 6 |
| **Graphic Design Required Courses** | | |
| ARTT355 | Intermediate Graphic Design Principles | 3 |
| ARTT356 | Graphic Design Processes | 3 |
| ARTT357 | Interactive Design | 3 |
| ARTT454 | Advanced Graphic Design Principles: Design in Society | 3 |
| ARTT455 | Three Dimensional Graphic Design | 3 |
| ARTT458 | Graphic Design Portfolio | 3 |
| ARTT361 | Design Literacy: Decoding Our Visual Culture [2] | 3 |
| **Total Credits** | | **60** |

[1] One course of 3xx-/4xx-level ARTH or Art Theory electives is satisfied by ARTT361 under Graphic Design required courses.
[2] Satisfies 3cr. of the Art History or Theory supporting area.

### Graphic Design Elective Courses

Not all courses are offered every semester. Some are offered during Summer and Winter terms.

| Course | Title | Credits |
|---|---|---|
| ARTT386 | Experiential Learning (Graphic Design Internship only) | 3-6 |
| ARTT456 | Motion Design | 3 |
| ARTT457 | Advanced Interactive Design | 3 |
| ARTT459 | Advanced Graphic Design Studio | 3 |
| ARTT488 | Advanced Special Topics in Graphic Design | 1-3 |
| ARTT499 | Directed Studies in Graphic Design | 1-3 |

## Other Requirements for the Major

Please go to Department of Art Website for more information: www.art.umd.edu (http://www.art.umd.edu)

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Art History and Archaeology

**College of Arts and Humanities**
1211-B Parren J. Mitchell Art-Sociology Building
Phone: 301-405-1479
tmorse@umd.edu
http://arthistory.umd.edu

The Department of Art History & Archaeology is a community of students and scholars that focuses on visual expression to understand culture in all its breadth and variations. Students in Art History & Archaeology study an expansive history of objects from the fine arts (painting, sculpture, architecture) to street art. In the classroom and with leading DC area arts institutions, you will refine your thinking about visual culture in both art historical and archaeological contexts, working across a wide range of histories, perspectives, and values.

Students are encouraged to supplement their art historical and archaeological studies with courses in other fields, to participate in internships at local museums and galleries, and to take advantage of Maryland's study abroad programs. Students who have completed a minimum of 60 credits may apply to the department's honors program.

## PROGRAMS

### Major

- Art History Major (p. 159)

### Minors

- Archaeology Minor (ARTH) (p. 159)
- Art History Minor (p. 160)

## ADVISING

Our director of undergraduate studies and undergraduate advisor are ready to help. For contact information, office hours, and other details, go to: http://arthistory.umd.edu/academics/undergraduate/advising/.

Departmental advising is mandatory for all majors. Once registration begins, students must make an appointment for departmental advising before the department can remove their registration block. Students should check for registration blocks and advising hours.

Students should consult the department's undergraduate advisor for general and mandatory advising matters including registration and advising block removal, study abroad questions, and museum internships. For specific questions regarding the major and minor programs and requirements, special situations, issues with academic probation, as well as for special permissions, please contact the director of undergraduate studies.

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

## OPPORTUNITIES

### Internships

The location of the university between Washington and Baltimore gives students the opportunity to use some of the finest museums and archival collections in the world for their coursework, independent research and internships. Art History majors are encouraged to supplement their art historical and archaeological studies by applying to internships at local museums and galleries. For more information regarding local museum and gallery internships in the DC-Baltimore region, please consult the departmental website: http://arthistory.umd.edu/academics/undergraduate/internships-careers/.

### Experiential Learning

Students of junior standing or higher may receive academic credit for spring or fall museum/gallery internships via ARTH386. This course may count as one of the seven 3xx/4xx-level ARTH courses required for completion of the ARTH major. Prerequisites: permission of the department and 60 credit hours completed.

For details outlining the process for securing such credit and for museum internship information, go to: http://arthistory.umd.edu/academics/undergraduate/internships-careers/.

Students must complete all of the required steps outlined on the website and register for ARTH386 before the end of the schedule adjustment period for that semester. The department does not give credit for museum and gallery internships that have already been completed.

## Honors Program

The Honors Program allows advanced undergraduate students (those who have completed at least 60 credits, of which 12 are ARTH credits) to develop a topic with a faculty advisor, write an honors thesis, and work toward departmental honors at graduation. Such honors will be noted on your official transcript. Consult the Director of Undergraduate Studies for details.

Among your seven 3xx/4xx-level ARTH courses required for the major, you must take at least one colloquium (ARTH488). In addition to the regular requirements for the major, you must research and write an Honors Thesis (ARTH499), normally in the year when you will graduate. Before registering for this course you must identify and gain the support of a faculty supervisor. The faculty supervisor must be a regular member of the ARTH department faculty. Adjunct faculty members do not supervise honors theses.

## Student Societies and Professional Organizations

The Department of Art History and Archaeology has an active Undergraduate Art History Association (AHA) and is also affiliated with OrgSync. Interested students should contact the Director of Undergraduate Studies or the Undergraduate Advisor for more information or go to http://facebook.com/UmdAHA/.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Awards and Recognition

The Department of Art History and Archaeology offers four undergraduate awards each year at spring commencement. The Judith K. Reed Scholarship is awarded to an exemplary ARTH major of junior standing. The Judith K. Reed Commencement Award, the George Levitine Award, and the Frank DiFederico Award are granted to outstanding graduating

ARTH seniors. For more information, visit: http://arthistory.umd.edu/academics/undergraduate/funding-awards/.

# Archaeology Minor (ARTH)

Phone: 301-405-2360
jbravo@umd.edu
http://classics.umd.edu/academicprograms/archaeology/

**Director of Undergraduate Studies:** Jorge J. Bravo III, Ph.D.

Advising will be coordinated in any given year by the faculty member who is teaching the required, cross-listed course. Contact Prof. Jorge Bravo (jbravo@umd.edu) in the Classics Department for information.

The interdisciplinary minor in Archaeology is intended to introduce students to the global importance of archaeology and its value as a mode of scholarly inquiry.

## REQUIREMENTS

The minor requires a minimum of 15 credits and consists of three elements:

1. A required 3-credit, 3xx-level course, Archaeological Methods and Practice, cross-listed as ANTH305, CLAS305, ARTH305, and JWST319Y, to be offered once each year. There is a one-course prerequisite, to be chosen from among the following: ANTH240, CLAS180, or ARTH200.
2. 3 to 6 credits in approved courses offering fieldwork experience. There are many options at UMCP, including historical archaeology courses in ANTH that do not require travel abroad. Study-abroad programs at other institutions must be approved in advance by a UMCP faculty member with the appropriate specialization.
3. 6 to 9 credits in supporting courses involving subject matter that includes a significant focus on archaeology (in, e.g., ARCH, ANTH, ARTH, CLAS, HIST, JWST, LARC, RELS). A list of approved courses will be made available to students interested in the minor. The list will be updated as course offerings change.

As required for all minors, at least 9 credits overall must be in courses at the 3xx or 4xx level. The grade point average in the minor must be at least 2.0 and no grade below "C-" can be counted toward the minor. A maximum of 6 credits may be counted toward both the minor and the student's major. A maximum of 6 credits earned at other institutions may be counted toward the minor.

# Art History Major

**Director of Undergraduate Studies:** Aneta Georgievska-Shine, Ph.D.

The goal of the Department is to develop the student's critical understanding of visual culture in both art historical and archaeological contexts. The program provides a diverse selection of courses in the art and archaeology of the Americas, Asia, and Europe.

The location of the University between Washington and Baltimore gives students the opportunity to use some of the finest museum and archival collections in the world for their coursework and independent research. Curator/professors, exhibitions in the Art Gallery and Stamp Gallery at the University of Maryland, and the extensive use of study collections bring regional and distant museums into the classroom.

Courses offered by this Department may be found under the following acronym: ARTH.

## Admission to the Major

Students must meet either with the director of undergraduate studies or undergraduate advisor for admission to the major. Together, the advisor and student will complete the departmental portion of the *College of Arts and Humanities and Art History Academic Plan Checklist*. The student must take the form to the college and meet with the ARHU advisor. The ARHU advisor will make the official change in the university records.

## Program Objectives

The Department of Art History and Archaeology prepares students to examine, interpret, and evaluate the densely visual world in which we live today. We study monuments, objects, and spaces of visuality across time (from antiquity to the modern day) and among the world's cultures (from Africa, the Americas, Asia, and Europe), engaging with the materiality of created things and the modes of inhabiting spaces. Students learn to investigate visual objects and environments as communicative forms created in response to particular political, social, religious and economic circumstances, and cultivate strong research, writing, and critical thinking skills.

## Program Learning Outcomes

Students are expected to fully engage with the curriculum and the opportunities presented for learning and research. Having completed the B.A. in Art History, students should have acquired the following abilities:

1. An ability to demonstrate knowledge of a large set of artistic monuments, objects, and performances in their cultural, historical, political, and/or social contexts.
2. An ability to communicate effectively about art in writing, using clear and concise prose to advance logical arguments supported by adequate and appropriately cited research materials.
3. An ability to employ the appropriate technologies for conducting research in the history of art, including print sources and/or electronic information.
4. An ability to recognize the methods and theories used to ask and address significant questions about works of art, and understand the values informing them.
5. An ability to demonstrate skills in visual and critical analysis and sensitivity to diversity in comparing works of art across time, geography, and/or culture.

## Academic Programs and Departmental Facilities

The location of the university between Washington and Baltimore gives students the opportunity to use some of the finest museum and archival collections in the world for their course work and independent research. The department encourages students to hold internships at a number of these institutions. Curator/professors, exhibitions in galleries at the University of Maryland, digital technologies, and the extensive use of study collections complement traditional classroom learning.

The department is at the forefront of exploring digital technologies for art historical and archaeological teaching, research, and publication. The Michelle Smith Collaboratory for Visual Culture, located in the department on the fourth floor of the Parren J. Mitchell Art-Sociology Building, is central in creating a nurturing environment for academic research

and creative learning. The Collaboratory permits ample workspace for meetings, workshops, forums, and the execution of large-scale digital projects.

## REQUIREMENTS

Requirements for the major in Art History are as follows:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Required Courses** | | |
| ARTT100 | Two-Dimensional Design Fundamentals | 3 |
| or ARTT110 | Elements of Drawing I | |
| Select three ARTH courses at the 2xx level, one of which may be a Big Question course [1] | | 9 |
| Select seven ARTH courses at the 3xx or 4xx level [2] | | 21 |
| **Supporting Area** | | |
| Select three courses at the 3xx or 4xx level outside the Art History and Archaeology Department [3] | | 9 |
| **Total Credits** | | **42** |

[1] These courses, include, but are not limited to, the following: ARTH200, ARTH201, ARTH221, ARTH230, ARTH250, ARTH255, ARTH275, ARTH290, ARTH292

[2] Of those seven courses, at least one must be ARTH488. Enrollment for ARTH488 is limited to

1. majors with at least 75 total credits and at least 9 credits in ARTH at the 3xx level, or
2. those given permission by the faculty/Department.

[3] Courses should cohere around a broad area of study, and must be related to the student's studies in the Department. All supporting courses must be approved by an ARTH advisor.

*No course with a grade lower than "C-" may be used to satisfy major or supporting area requirements.*

An overall GPA of 2.0 in the major is required for graduation.

## Other Requirements for the Major

In the Department of Art History and Archaeology, 3xx-level and 4xx-level courses are differentiated. 3xx-level courses focus on period or topical surveys and 4xx-level courses highlight content- or theme-based material. Majors should complete the 2xx-level surveys before they enroll in 3xx- or 4xx-level courses. Students are strongly encouraged to take supporting area courses that complement the art history major. No course with a grade lower than “C-" may be used to satisfy major or supporting area requirements.

**Limit on Special Courses**

- No more than 3 credits total of 269 or 289 (i.e. no more than one 200-level study- abroad course or one 200-level transfer course in a topic that is not fundamentally equivalent to one of our courses).
- No more than 6 credits of 369 (i.e. no more than two 300-level study abroad courses in topics that are not fundamentally equivalent to our 300-level courses).
- No more than 6 credits of 389 (i.e. no more than two 300-level special courses, as transfer credit or here on campus, on topics outside our regularly offered, "hard-numbered" curriculum)

## GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Art History Minor

**Art History and Archaeology (ARTH)**
1211B Parren J. Mitchell Art-Sociology Building
Phone: 301-405-1479
http://arthistory.umd.edu

**Director of Undergraduate Studies:** Aneta Georgievska-Shine, Ph.D.

The minor in Art History introduces students to a range of art-historical periods, problems, and methodologies and is intended at once to broaden and deepen the student's knowledge of arts and humanities. A total of 18 credits is required.

To make an appointment to explore or declare a minor, go to http://arhu.umd.edu/academics/undergraduate-studies/minors/.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| Select three ARTH courses at the 2xx level, one of which may be an I-Series course [1] | | 9 |
| Select three ARTH3xx or ARTH4xx level courses | | 9 |
| **Total Credits** | | **18** |

[1] These courses, include, but are not limited to, the following: ARTH200, ARTH201, ARTH221, ARTH230, ARTH250, ARTH255, ARTH275, ARTH290, ARTH290

A total of six (6) credits may be transferred into the minor from other institutions or programs. These transferred credits include those from study-abroad programs. Study-abroad credit requires the prior approval of the Director of Undergraduate Studies.

All courses presented for the minor must be passed with a grade of "C-" or better.

An overall GPA of 2.0 in the minor is required for graduation.

# Classical Languages and Literature

**College of Arts and Humanities**
1210 Marie Mount Hall
Phone: 301-405-2013 or 301-405-2014
http://classics.umd.edu

**Chair:** Eric Adler, Ph.D. (eadler@umd.edu)
**Director of Undergraduate Studies:** Jorge J. Bravo III, Ph.D. (jbravo@umd.edu)

The department offers three different undergraduate major tracks and four minors. Classics is a strong pre-professional major for a wide range of careers. Many of our courses can also be used to fulfill General Education and/or CORE requirements.

We offer instruction under three different headings: CLAS, GREK, and LATN. CLAS courses focus on various aspects of the ancient world using English language texts and works of Greek and Latin literature in English translation. CLAS courses do not provide instruction in the ancient languages nor will they satisfy the Global Engagement requirement (http://arhu.umd.edu/undergraduate/globalengagement/) in the College of Arts and Humanities (http://arhu.umd.edu). GREK and LATN courses use English language texts as well as material in Greek or Latin. They are designed to help students to master the Latin or Greek language and can be used to satisfy the college's Global Engagement requirement.

Students who plan to do graduate work in Classics, ancient history, ancient philosophy, or ancient Mediterranean art history and archaeology should choose the Latin and Greek track, with either Latin or Greek as the primary language. Those planning to teach Latin at the secondary level should choose the Latin or Latin and Greek track. Students who have other plans after graduation and who major in Classics for the strong liberal arts background it offers may choose any of the major tracks.

# PROGRAMS

## Major

- Classical Languages and Literatures Major (p. 162)

## Minors

- Archaeology Minor (CLAS) (p. 162)
- Classical Mythology Minor (p. 163)
- Greek Language and Culture Minor (p. 164)
- Latin Language and Literature Minor (p. 164)

# ADVISING

Departmental advising is mandatory for all majors every semester and is recommended for those seeking minors. Advising is provided by tenured and tenure-track faculty in the department. Advisor assignments for majors are posted on the ELMS page "Department of Classics Undergraduate Advising"; minors should contact Professor Jorge Bravo (jbravo@umd.edu) to be matched with an advisor.

To review the academic plan for this major, go to http://arhu.umd.edu/undergraduate/advising/academicplans/.

# OPPORTUNITIES

## Undergraduate Research Experiences

The major culminates in a Capstone Course, in which students develop and present research which has grown out of their work in the field. Majors are encouraged to participate in undergraduate research conferences locally and nationally. The department enables students to become involved in summer research opportunities and encourages all majors to seek internships.

## Fieldwork Opportunities

Classics students have the opportunity to participate in the study of archaeological sites, including fieldwork, through our department and others in the university. Students may also pursue an interdisciplinary minor in archaeology. Contact Prof. Jorge Bravo (jbravo@umd.edu) for further information.

## Internships

All Classics majors are encouraged to seek internships and there are many opportunities to do so in the Washington area. Classics students have interned at the National Archives, Smithsonian, Library of Congress, and Center for Hellenic Studies, among others.

## Student Societies and Professional Organizations

Eta Sigma Phi is the national undergraduate Honor Society in Classics founded in 1914 at the University of Chicago. The University of Maryland's chapter, Zeta Nu, was established in 1994. Students are invited to join in the spring semester. To qualify, a student must have completed or be registered in a 3xx- or 4xx-level Greek or Latin course, must have at least a "B+" average in all language courses, and an overall GPA of "B" or better.

Students can submit abstracts for papers to be presented at regional and national Classics conferences. They can also join the Society for Classical Studies and the American Classical League, which are the national classics professional organizations, as well as the Classical Association of the Atlantic States, which is our regional classical organization.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

The Classics Department awards a number of special scholarships and awards, some reserved for Classics majors and others awarded to them in preference.

For Classics majors only: The Avery Prize is awarded annually to a Latin student of special merit and the Hubbe Prize to a Greek student of special merit. The Mildred Steyer Undergraduate Scholarship is awarded to one or more outstanding majors in Classics.

The Odyssey scholarships are available to Classics majors and minors to support study abroad and other student needs. To honor the memory of Sylvia Gerber, who taught Latin for many years in the Washington, DC public schools, her son Louis has provided the department with funding to support the training of Latin teachers and Latin pedagogical studies, including an undergraduate award for an aspiring Latin teacher.

## Awards and Recognition

Outstanding students in Greek and Latin are invited to join Eta Sigma Phi, the national undergraduate Honor Society in Classics (see Student Societies and Professional Organizations above).

The department also annually awards the Avery Prize for excellence in Latin, the Hubbe Prize for excellence in Greek, and the Steyer, Odyssey, and Gerber Scholarships (see Scholarships and Financial Assistance above).

# Archaeology Minor (CLAS)

Phone: 301-405-2360
jbravo@umd.edu
http://classics.umd.edu/academicprograms/archaeology/

**Director of Undergraduate Studies:** Jorge J. Bravo III, Ph.D.

Advising will be coordinated in any given year by the faculty member who is teaching the required, cross-listed course. Contact Prof. Jorge Bravo (jbravo@umd.edu) in the Classics Department for information.

The interdisciplinary minor in Archaeology is intended to introduce students to the global importance of archaeology and its value as a mode of scholarly inquiry.

## REQUIREMENTS

The minor requires a minimum of 15 credits and consists of three elements:

1. A required 3-credit, 3xx-level course, Archaeological Methods and Practice, cross-listed as ANTH305, CLAS305, ARTH305, and JWST319Y, to be offered once each year. There is a one-course prerequisite, to be chosen from among the following: ANTH240, CLAS180, or ARTH200.
2. 3 to 6 credits in approved courses offering fieldwork experience. There are many options at UMCP, including historical archaeology courses in ANTH that do not require travel abroad. Study-abroad programs at other institutions must be approved in advance by a UMCP faculty member with the appropriate specialization.
3. 6 to 9 credits in supporting courses involving subject matter that includes a significant focus on archaeology (in, e.g., ARCH, ANTH, ARTH, CLAS, HIST, JWST, LARC, RELS). A list of approved courses will be made available to students interested in the minor. The list will be updated as course offerings change.

As required for all minors, at least 9 credits overall must be in courses at the 3xx or 4xx level. The grade point average in the minor must be at least 2.0 and no grade below "C-" can be counted toward the minor. A maximum of 6 credits may be counted toward both the minor and the student's major. A maximum of 6 credits earned at other institutions may be counted toward the minor.

# Classical Languages and Literatures Major

**Director of Undergraduate Studies:** Jorge J. Bravo III, Ph.D.

Courses offered by this department may be found under the following acronym(s): CLAS, LATN, and GREK.

Classics is the study of ancient Greek and Roman culture in all its aspects. Greek and Roman culture provided the foundation of western culture, including its literature, ideas, art, politics, and conceptions of the individual. Greek myth is still a shared fund of images and narratives that express human experience. Latin is a major source of English vocabulary, and Greek provides technical language in many fields. Classics explores all of these aspects through over fifteen hundred years of history. It helps us understand the relationship of western culture to other cultural systems and situate ourselves better in the world.

Classics is an intellectually rich and versatile liberal arts major which teaches core skills, including effective communication, critical thinking, and an appreciation of diversity. Because it is interdisciplinary and holistic, a student of classics gets a three-dimensional view of cultures and literatures that are still major forces today. Studying Athenian democracy and the Roman Republic sharpens understanding of competing philosophical and political ideas. Studying Latin not only develops English vocabulary, but makes English grammar comprehensible. Both languages provide excellent analytic training and Classics students score among the top in the Analytic Writing section of the GRE exams.

Classics is a pre-professional major for law school or for graduate school in any aspect of the ancient world. Classics majors have also gone on to medical school and library school. Latin teachers are in demand and numerous students have found rewarding jobs teaching secondary school, with continued involvement in the Classics community. Others have gone into business or gotten jobs in (among other fields) professional writing or editing, archival work, government services, academic administration, information technology, or social services.

## Admission to the Major

Admission to the major simply requires a meeting with the undergraduate advisor. No prior knowledge of Latin or Greek is required.

## Placement in Courses

Students with a score of 4 or 5 in the AP Latin test receive credit for LATN201 (4 credits) and may not take LATN201 or lower for credit. For further information, and for placement in Latin or Greek courses, contact the department's undergraduate advisor. We do not have online placement exams for these languages but can place you based on our assessment of your previous course work.

## Program Objectives

Classics provides students with a liberal arts education: skills in written and oral use of language, close reading, critical thinking, and the appreciation of art, literature, history, and culture. The core subject matter of Classics consists of the Greek and Latin languages, the texts originally written in these languages, and the art and material culture of the peoples who spoke them. The program also studies the reception of these works in modern times and their relevance to us today.

## Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

1. Students must demonstrate the ability to interpret the cultural context of primary sources through a variety of methodological approaches.

2. Majors who take Latin and Greek are expected to demonstrate some level of language proficiency. -Latin majors must be able to read and translate Latin at the advanced level. -Latin and Greek majors must be able to read and translate either Latin or Greek at the advanced level and the other language at the intermediate level. -Classical Humanities majors must be able to demonstrate the ability to assess Classical texts in translation, or primary evidence, through a variety of methodological approaches at the advanced level.

## Academic Programs and Departmental Facilities

The Classics Department has its own Classics library and there is an Archaeology Club that its undergraduate students are welcome to join. It conducts an annual study abroad program in Italy in Winter Term that is open to non-majors as well as to Classics majors and minors. We also host a chapter of the national Classics honor society, Eta Sigma Phi; students are invited to join when they reach the 3xx level in either Latin or Greek with a "B+" average in the language courses and a "B" average overall.

# REQUIREMENTS

Requirements for the Classics major include the College of Arts and Humanities requirement of 45 3xx- or 4xx-level credits completed.

The College's Global Engagement Requirement will be automatically fulfilled in the process of taking language courses in the Latin or Latin and Greek tracks of the major.

No course grade below the grade of "C-" may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| Select an Option: | | 39-42 |
| Option A: Latin | | |
| Option B: Latin and Greek | | |
| Option C: Classics in Translation (Classical Humanities) | | |
| **Total Credits** | | **39-42** |

## Option A: Latin

| Course | Title | Credits |
|---|---|---|
| Select LATN courses at the 2xx/3xx level | | 18 |
| Select LATN courses at the 4xx level or higher | | 12 |
| Select supporting courses at any level CLAS, GREK, or related fields such as HIST and ARTH | | 9-12 |
| **Total Credits** | | **39-42** |

## Option B: Latin and Greek

| Course | Title | Credits |
|---|---|---|
| Select an Option: | | 30 |
| Option 1: | | |
| Select 18 credits in LATN courses | | |
| Select 12 credits in GREK courses [1] | | |
| Option 2: | | |
| Select 18 credits in GREK courses | | |
| Select 12 credits in LATN courses [1] | | |
| Supporting courses [2] | | 9 |
| **Total Credits** | | **39** |

1. Students with no previous training in the second language may count introductory level courses as part of the 12-hour requirement.
2. For example, CLAS170, HIST110, and a 3xx- or 4xx-level course in Greek or Roman history

## Option C: Classics in Translation (Classical Humanities)

| Course | Title | Credits |
|---|---|---|
| **Foundation Courses** | | |
| Select 12 credits at the 1xx-2xx level, at least 6 of which must be in Classics (CLAS courses) [1] | | 12 |
| **Advanced Courses** | | |
| Select eight courses at the 3xx-level or above, of which four must be in Classics and one must be the following: [2] | | 24 |
| CLAS409 | Classics Capstone Seminar (to be taken in the junior or senior year) | |
| **Total Credits** | | **36** |

1. The introductory Latin or Greek sequence (LATN101, LATN102, LATN201 or GREK101, GREK102, GREK201), if taken at College Park, fulfills this requirement. If LATN120 and LATN201 are taken at College Park, only one additional course at the 1xx-2xx level is required. If no language is taken, four courses in English translation, including at least two in Classics, are required. Students who are capable of working at a higher level may request departmental approval to substitute 3xx or 4xx-level courses for some of the introductory credits.
2. As a special exception, either LATN201 or GREK201, intermediate Latin or Greek, may be counted as one of the advanced courses. Students are still required to fulfill the ARHU requirement of 45 3xx-4xx level credits.

## Other Requirements for the Major

Students in the Classical Humanities track should work with their advisor to craft a meaningful set of courses with a focus on some particular aspect of the classical world, such as myth and religion, literature in its historical context, visual and material culture, or classical reception.

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

## Classical Mythology Minor

**Classics (CLAS)**
1210 Marie Mount Hall

Phone: 301-405-2360
http://classics.umd.edu

**Director of Undergraduate Studies:** Jorge J. Bravo III, Ph.D.

This minor will introduce students to classical mythology, its uses within ancient Greek and Roman culture, and its subsequent influence on art and literature. The minor requires 15 credits.

Students interested in pursuing this minor should consult with the Director of Undergraduate Studies in the Department of Classics.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| CLAS170 | Ancient Myths and Modern Lives | 3 |
| CLAS470 | Approaches to Greek Mythology | 3 |
| Select three courses of the following, two of which must be at the 3xx or 4xx level: | | 9 |
| CLAS320 | Women in Classical Antiquity | |
| CLAS330 | Ancient Greek Religion: Gods, Myths, Temples | |
| CLAS331 | Roman Religion: From Jupiter to Jesus | |
| CLAS374 | Greek Tragedy in Translation | |
| CLAS419 | The Classical Tradition | |
| **Total Credits** | | **15** |

No course grade below the grade of "C-" may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation. For more information, see the Department of Classics website: www.classics.umd.edu (https://classics.umd.edu/)

# Greek Language and Culture Minor

**Department of Classics**
http://classics.umd.edu

**Director of Undergraduate Studies:** Jorge J. Bravo III, Ph.D.

This minor may be earned in either the ancient or the modern Greek language (not a combination). In completing it, the student will reach an intermediate or advanced level of proficiency in the language and will also be introduced to the history and culture of Greece.

To make an appointment to explore or declare the minor, contact the Director of Undergraduate Studies, Dr. Jorge J. Bravo III (jbravo@umd.edu). If you wish to minor in Modern Greek, he will put you in touch with the instructor of Modern Greek, Dr. Polyvia Parara, for placement.

## REQUIREMENTS

REQUIREMENTS: a total of at least 15 credits, including:

• 9 to 15 credits in ancient OR modern Greek language courses (ALL must be in either ancient OR modern Greek, not a combination); at least one language course must be at the 300 or 400 level.

• 3 to 6 credits in courses taught in English focusing on ancient and/or modern Greek history, literature, and culture.

• At least 9 credits of the total must be at the 300 or 400 level.

The grade point average in the minor must be at least 2.0 and no grade below C- can be counted toward the minor.

Students are encouraged to include courses earned through study abroad that satisfy the requirements. A maximum of six credits earned at other institutions may be counted toward the minor. A maximum of six credits may be counted toward both the minor and the student's major.

# Latin Language and Literature Minor

**Department of Classics**
http://classics.umd.edu

**Program Director:** Katherine Wasdin, Ph.D.
**Director of Undergraduate Studies:** Jorge J. Bravo III, Ph.D.

This minor introduces students to the Latin language and enables them to read, in Latin, important works of Latin literature.

Students interested in pursuing this minor should consult with the Program Director or the Director of Undergrauate Studies in the Department of Classics. The minor is valuable both for the intrinsic interest of the subject and for the related skills that contribute to higher scores on the GRE exam. Those who enjoyed Latin in high school are encouraged to continue their studies at Maryland.

## REQUIREMENTS

For students with no prior experience of Latin, the minor requires 21 credits, consisting of the following courses:

| Course | Title | Credits |
|---|---|---|
| LATN101 | Elementary Latin I | 4 |
| LATN102 | Elementary Latin II | 4 |
| LATN201 | Intermediate Latin | 4 |
| Select two 3xx level reading courses chosen from the following: Plautus, Petronius, Ovid or Horace and Catullus | | 6 |
| Select a 4xx level reading course in a major Latin author | | 3 |
| **Total Credits** | | **21** |

Students who enter with advanced standing in Latin can complete the minor by taking a total of five courses in Latin at the 2xx level and beyond.

# Communication

**College of Arts and Humanities**
2130 Skinner Building
Phone: 301-405-6519
commadvising@umd.edu
http://communication.umd.edu

Communication takes as its subject matter the history, processes, and effects of human communication through speech and its extensions. The departmental curriculum is designed to provide a liberal education in the arts and sciences of human communication as well as preparation for career opportunities in business, government, education, and related fields. Within the curriculum, students may pursue academic courses that emphasize many disciplinary areas, including organizational communication, public relations, intercultural communication, political communication, conflict management, cognition and persuasion, rhetorical theory, history of rhetoric, and criticism of public discourse.

# PROGRAMS

## Major

- Communication Major (p. 165)

## Minor

- Rhetoric Minor (COMM) (p. 170)

# ADVISING

Advising is available throughout the year in 2101E Skinner Building. To schedule an advising appointment with a Communication advisor, go to: https://go.umd.edu/COMM_Advising (https://communication.umd.edu/academics/undergraduate/advising/). Students should check Testudo (http://testudo.umd.edu) for their registration date and for any mandatory advising blocks. Advising questions can be sent to commadvising@umd.edu or you may call 301-405-0862.

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

# OPPORTUNITIES

## Academic Programs and Departmental Facilities

The Mark and Heather Rosenker Center for Political Communication and Civic Leadership unites research, education, and public engagement to foster democratic communication by a diverse people. See: http://communication.umd.edu/research/political-communication-center/.

The Center for Health and Risk Communication (CHRC) advances dialogue and understanding about communication's role in controlling and preventing risk, how publics perceive risk communication, and about the political, economic, and social contexts for risk communication. Scholars associated with the CHRC examine health, food safety, security, and environmental risks. See: http://healthriskcenter.umd.edu.

The department's Oral Communication Center is designed to provide one-on-one tutoring and instructional support to further students' oral communication skills and confidence. The Oral Communication Center is equipped with cameras and recording equipment to tape speeches and presentations for practice and critique.

## Undergraduate Research Experiences

Research experiences include assisting on faculty research projects, participating in special team research projects, and working with the department's Mark and Heather Rosenker Center for Political Communication and Civic Leadership and/or the Center for Health and Risk Communication.

## Internships

The department's internship program helps communication majors gain professional experience, build a professional portfolio, and take the first steps toward a career. The department structures its internship program around a course, COMM386, which is offered each term.

## Honors Program

The Honors Program provides students with an opportunity for intensive study of communication. The program provides participants with opportunities to deepen their understanding of the discipline through supervised research with faculty, graduate-level coursework, and involvement in the intellectual life of the department.

Students interested in the Honors Program apply for the program, ordinarily during the second semester of the sophomore year or the first semester of the junior year. The application is filed with the undergraduate director. Students should have the following qualifications:

- An overall GPA of 3.3 or above.
- Completion of nine semester hours in Communication including COMM250.
- GPA of 3.5 or above in Communication.

## Student Societies and Professional Organizations

Social and academic activities are available to students by participating in the following student organizations: the Undergraduate Communication Association, the Lambda Pi Eta Honor Society, and the Maryland chapter of the Public Relations Student Society of America.

## Scholarships and Financial Assistance

The department offers the following scholarships and awards:

The Daniel Cronin Terpstart Endowed Scholarship in Communication is an annual, need-based scholarship awarded to undergraduate communication majors.

The June Buteau Scholarship is awarded to a first-year communication major with financial need.

The Swann Communication Internship Award is given annually to a student who is completing a substantive summer communication internship or practicum experience in the field of public service.

The Toth Outstanding PR Student of the Year Award goes to a senior student in the PR specialization who demonstrates academic and leadership excellence.

# Communication Major

**Program Director:** Leah Waks, Ph.D.

Communication takes as its subject matter the history, processes, and effects of human communication through speech and its extensions. The departmental curriculum is designed to provide a liberal education in the arts and sciences of human communication as well as preparation for career opportunities in business, government, education, law, and related fields. Students pursue academic programs that emphasize many disciplinary areas, including intercultural communication, political communication, public relations, negotiation and conflict management, cognition and persuasion, rhetorical theory, risk communication, history of rhetoric, and criticism of public discourse  Departmental advising is mandatory for new majors, second semester sophomores, and seniors.

# Admission to the Major

## First-time Freshman

All first-time freshmen who designate Communication as a major prior to the end of the final exam period of their first semester will be admitted directly to the program. They must sign a Memorandum of Understanding that states that they understand that by the semester in which they attain 45 University of Maryland credits (excluding AP), they must meet the following gateway requirements:

1. Complete one of the following courses with a grade of "C-" or better: BMGT230, CCJS200, EDMS451, PSYC200, SOCY201, STAT100, or equivalent.
2. Complete COMM107, COMM200, or COMM230 with a grade of "C-" or better
3. Complete COMM250 with a grade of "C-" or better and
4. A GPA of 2.0 or better

Students may repeat only one of the gateway requirements and that requirement may be repeated only once in their attempt to meet the requirements. Students who fail to meet the gateway requirements by the semester in which they attain 45 credits will be dismissed from the program and cannot reapply.

## Transfer Students

Internal and external transfer students who meet the gateway requirements specified above must also have a cumulative GPA of 2.70 in all college-level coursework to apply to the program.

## Appeals

All students may appeal admission decisions. Students directly admitted as freshmen, who are dismissed because of failure to meet gateway requirements or a failure to be in good academic standing at 45 credits, may appeal directly to the undergraduate director in the Department of Communication. All other students who are denied admission may appeal to the university's Office of Undergraduate Admissions.

# Program Learning Outcomes

Upon completion of the degree program in Communication, students should be able to demonstrate the following knowledge and skills:

1. An ability to distinguish among a variety of theoretical approaches in the communication discipline and use them appropriately and effectively in academic and professional work.
2. An ability to conduct research and write research reports employing social scientific and/or humanistic approaches in the communication discipline.
3. An ability to argue clearly and effectively in a speech.

# REQUIREMENTS

The course of study for a Communication major must satisfy all of the following requirements:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Oral Communication** | | |
| Select one of the following: | | 3 |
| COMM107 | Oral Communication: Principles and Practices | |
| COMM200 | Critical Thinking and Speaking | |
| COMM230 | Argumentation and Debate | |
| **Modes of Communication Inquiry** | | |
| COMM250 | Introduction to Communication Inquiry | 3 |
| **Fundamentals of Communication Skills** | | |
| COMM130 | Professional Communication and Writing | 1 |
| Select one of the following: | | 3 |
| BMGT230 | Business Statistics | |
| STAT100 | Elementary Statistics and Probability | |
| EDMS451 | Introduction to Educational Statistics | |
| CCJS200 | Statistics for Criminology and Criminal Justice | |
| PSYC200 | Statistical Methods in Psychology | |
| SOCY201 | Introductory Statistics for Sociology | |
| Select one of the following specializations: | | 36 |
| Communication Studies | | |
| Health and Science Communication | | |
| Media and Digital Communication | | |
| Political Communication and Public Advocacy | | |
| Public Relations | | |
| **Total Credits** | | **46** |

# Communication Studies

| Course | Title | Credits |
|---|---|---|
| **Communication Theory & Principles** | | |
| Select two of the following: | | 6 |
| COMM201 | Introduction to Public Relations | |
| COMM301 | Rhetorical Theories | |
| COMM302 | Communication Science Theories | |
| COMM303 | Media Theory | |
| **Research Methods** | | |
| COMM304 | Communication Research Literacy | 3 |
| Select one of the following: | | 3 |
| COMM305 | Qualitative Communication Research Methods | |
| COMM306 | Rhetorical Methods in Communication | |
| COMM307 | Quantitative Methods in Communication | |
| **Communication & Society** | | |
| Select one of the following Leadership & Social Change courses: | | 3 |
| COMM330 | Argumentation and Public Policy | |
| COMM385 | Influence | |
| COMM420 | Theories of Group Discussion | |
| COMM421 | Communicating Leadership | |
| COMM422 | Communication Management | |
| COMM424 | Communication in Complex Organizations | |
| COMM425 | Negotiation and Conflict Management | |
| COMM428 | Special Topics Seminar in Dialogues and Deliberation | |
| COMM436 | Interpersonal Arguing | |
| COMM448 | Special Topics in Public Relations | |
| COMM449 | Special Topics in Digital Communication | |
| COMM455 | Speechwriting | |
| COMM459 | Special Topics in Science Communication | |
| COMM461 | Voices of Public Leadership in the Twentieth Century | |

| | | |
|---|---|---|
| COMM462 | Visual Communication | |
| COMM469 | The Discourse of Social Movements | |
| COMM470 | Listening | |
| COMM475 | Persuasion | |
| Select one of the following Diversity & Inclusion courses: | | 3 |
| COMM324 | Communication and Gender | |
| COMM360 | The Rhetoric of Black America | |
| COMM382 | Essentials of Intercultural Communication | |
| COMM454 | Rhetoric of the 1960s | |
| COMM460 | Public Life in American Communities, 1634-1900 | |
| **Applied** | | |
| Select one of the following: | | 3 |
| COMM311 | Peer Consulting in Oral Communication | |
| COMM386 | Experiential Learning | |
| COMM388 | Communication Practicum | |
| Select one of the following: | | 3 |
| COMM311 | Peer Consulting in Oral Communication | |
| COMM330 | Argumentation and Public Policy | |
| COMM331 | News Writing and Reporting for Public Relations | |
| COMM370 | Mediated Communication | |
| COMM371 | Communication and Digital Media | |
| COMM375 | Documentary Theory and Practice | |
| COMM386 | Experiential Learning | |
| COMM388 | Communication Practicum | |
| COMM425 | Negotiation and Conflict Management | |
| COMM426 | Conflict Management | |
| COMM455 | Speechwriting | |
| **Electives** | | |
| 3xx or 4xx-Level COMM Electives | | 12 |
| **Total Credits** | | **36** |

# Health and Science Communication

| Course | Title | Credits |
|---|---|---|
| **Communication Theory & Principles** | | |
| COMM302 | Communication Science Theories | 3 |
| Select one of the following: | | 3 |
| COMM201 | Introduction to Public Relations | |
| COMM301 | Rhetorical Theories | |
| COMM303 | Media Theory | |
| **Research Methods** | | |
| COMM304 | Communication Research Literacy | 3 |
| Select one of the following Research Methods courses: | | 3 |
| COMM305 | Qualitative Communication Research Methods | |
| COMM306 | Rhetorical Methods in Communication | |
| COMM307 | Quantitative Methods in Communication | |
| **Communication & Society** | | |
| Select one of the following Leadership & Social Change courses: | | 3 |
| COMM330 | Argumentation and Public Policy | |
| COMM385 | Influence | |
| COMM420 | Theories of Group Discussion | |
| COMM421 | Communicating Leadership | |
| COMM422 | Communication Management | |
| COMM424 | Communication in Complex Organizations | |
| COMM425 | Negotiation and Conflict Management | |
| COMM428 | Special Topics Seminar in Dialogues and Deliberation | |
| COMM436 | Interpersonal Arguing | |
| COMM448 | Special Topics in Public Relations | |
| COMM449 | Special Topics in Digital Communication | |
| COMM455 | Speechwriting | |
| COMM459 | Special Topics in Science Communication | |
| COMM461 | Voices of Public Leadership in the Twentieth Century | |
| COMM462 | Visual Communication | |
| COMM469 | The Discourse of Social Movements | |
| COMM470 | Listening | |
| COMM475 | Persuasion | |
| Select one of the following Diversity & Inclusion courses: | | 3 |
| COMM324 | Communication and Gender | |
| COMM360 | The Rhetoric of Black America | |
| COMM382 | Essentials of Intercultural Communication | |
| COMM454 | Rhetoric of the 1960s | |
| COMM460 | Public Life in American Communities, 1634-1900 | |
| **Applied** | | |
| Select one of the following: | | 3 |
| COMM311 | Peer Consulting in Oral Communication | |
| COMM386 | Experiential Learning | |
| COMM388 | Communication Practicum | |
| Select one of the following: | | 3 |
| COMM311 | Peer Consulting in Oral Communication | |
| COMM330 | Argumentation and Public Policy | |
| COMM331 | News Writing and Reporting for Public Relations | |
| COMM370 | Mediated Communication | |
| COMM371 | Communication and Digital Media | |
| COMM375 | Documentary Theory and Practice | |
| COMM386 | Experiential Learning | |
| COMM388 | Communication Practicum | |
| COMM425 | Negotiation and Conflict Management | |
| COMM426 | Conflict Management | |
| COMM455 | Speechwriting | |
| Select four of the following specialization electives: [1] | | 12 |
| **Specialization Electives** | | |
| COMM390 | Health Communication | |
| COMM419 | Special Topics in Health Communication | |
| COMM422 | Communication Management | |
| COMM424 | Communication in Complex Organizations | |
| COMM426 | Conflict Management | |
| COMM427 | Crisis Communication | |
| COMM435 | Theories of Interpersonal Communication | |
| COMM459 | Special Topics in Science Communication | |
| **Total Credits** | | **36** |

[1] The same course cannot be used to fulfill more than one requirement.

# Media and Digital Communication

| Course | Title | Credits |
|---|---|---|
| **Communication Theory & Principles** | | |
| COMM303 | Media Theory | 3 |
| Select one of the following: | | 3 |
| COMM201 | Introduction to Public Relations | |
| COMM301 | Rhetorical Theories | |
| COMM302 | Communication Science Theories | |
| **Research Methods** | | |
| COMM304 | Communication Research Literacy | 3 |
| Select one of the following Research Methods courses: | | 3 |
| COMM305 | Qualitative Communication Research Methods | |
| COMM306 | Rhetorical Methods in Communication | |
| COMM307 | Quantitative Methods in Communication | |
| **Communication & Society** | | |
| Select one of the following Leadership & Social Change courses: | | 3 |
| COMM330 | Argumentation and Public Policy | |
| COMM385 | Influence | |
| COMM420 | Theories of Group Discussion | |
| COMM421 | Communicating Leadership | |
| COMM422 | Communication Management | |
| COMM424 | Communication in Complex Organizations | |
| COMM425 | Negotiation and Conflict Management | |
| COMM428 | Special Topics Seminar in Dialogues and Deliberation | |
| COMM448 | Special Topics in Public Relations | |
| COMM449 | Special Topics in Digital Communication | |
| COMM455 | Speechwriting | |
| COMM459 | Special Topics in Science Communication | |
| COMM461 | Voices of Public Leadership in the Twentieth Century | |
| COMM462 | Visual Communication | |
| COMM469 | The Discourse of Social Movements | |
| COMM470 | Listening | |
| COMM475 | Persuasion | |
| Select one of the following Diversity & Inclusion courses: | | 3 |
| COMM324 | Communication and Gender | |
| COMM360 | The Rhetoric of Black America | |
| COMM382 | Essentials of Intercultural Communication | |
| COMM454 | Rhetoric of the 1960s | |
| COMM460 | Public Life in American Communities, 1634-1900 | |
| **Applied** | | |
| Select one of the following: | | 3 |
| COMM311 | Peer Consulting in Oral Communication | |
| COMM386 | Experiential Learning | |
| COMM388 | Communication Practicum | |
| Select one of the following: | | 3 |
| COMM311 | Peer Consulting in Oral Communication | |
| COMM330 | Argumentation and Public Policy | |
| COMM331 | News Writing and Reporting for Public Relations | |
| COMM370 | Mediated Communication | |
| COMM371 | Communication and Digital Media | |
| COMM375 | Documentary Theory and Practice | |
| COMM386 | Experiential Learning | |
| COMM388 | Communication Practicum | |
| COMM425 | Negotiation and Conflict Management | |
| COMM426 | Conflict Management | |
| COMM455 | Speechwriting | |
| **Specialization Electives** | | |
| Select four of the following specialization electives: [1] | | 12 |
| COMM365 | Social Media & Digital Culture | |
| COMM370 | Mediated Communication | |
| COMM371 | Communication and Digital Media | |
| COMM372 | Communication, Meaning, and Digital Media | |
| COMM373 | Communication and Digital Visual Narrative | |
| COMM374 | Communicating Visually: Message Production and Digital Media | |
| COMM375 | Documentary Theory and Practice | |
| COMM376 | Communication through Advocacy Short Film | |
| COMM449 | Special Topics in Digital Communication | |
| COMM468 | Seminar in Mediated Communication | |
| **Total Credits** | | **36** |

[1] The same course cannot be used to fulfill more than one requirement.

# Political Communication and Public Advocacy

| Course | Title | Credits |
|---|---|---|
| **Communication Theory & Principles** | | |
| COMM301 | Rhetorical Theories | 3 |
| Select one of the following: | | 3 |
| COMM201 | Introduction to Public Relations | |
| COMM302 | Communication Science Theories | |
| COMM303 | Media Theory | |
| **Research Methods** | | |
| COMM304 | Communication Research Literacy | 3 |
| Select one of the following Research Methods courses: | | 3 |
| COMM305 | Qualitative Communication Research Methods | |
| COMM306 | Rhetorical Methods in Communication | |
| COMM307 | Quantitative Methods in Communication | |
| **Communication & Society** | | |
| Select one of the following Leadership & Social Change courses: | | 3 |
| COMM330 | Argumentation and Public Policy | |
| COMM385 | Influence | |
| COMM420 | Theories of Group Discussion | |
| COMM421 | Communicating Leadership | |
| COMM422 | Communication Management | |
| COMM424 | Communication in Complex Organizations | |
| COMM425 | Negotiation and Conflict Management | |
| COMM428 | Special Topics Seminar in Dialogues and Deliberation | |
| COMM436 | Interpersonal Arguing | |
| COMM448 | Special Topics in Public Relations | |
| COMM449 | Special Topics in Digital Communication | |

| | | |
|---|---|---|
| COMM455 | Speechwriting | |
| COMM459 | Special Topics in Science Communication | |
| COMM461 | Voices of Public Leadership in the Twentieth Century | |
| COMM462 | Visual Communication | |
| COMM469 | The Discourse of Social Movements | |
| COMM470 | Listening | |
| COMM475 | Persuasion | |
| Select one of the following Diversity & Inclusion courses: | | 3 |
| COMM324 | Communication and Gender | |
| COMM360 | The Rhetoric of Black America | |
| COMM382 | Essentials of Intercultural Communication | |
| COMM454 | Rhetoric of the 1960s | |
| COMM460 | Public Life in American Communities, 1634-1900 | |
| **Applied** | | |
| Select one of the following: | | 3 |
| COMM311 | Peer Consulting in Oral Communication | |
| COMM386 | Experiential Learning | |
| COMM388 | Communication Practicum | |
| Select one of the following: | | 3 |
| COMM311 | Peer Consulting in Oral Communication | |
| COMM330 | Argumentation and Public Policy | |
| COMM331 | News Writing and Reporting for Public Relations | |
| COMM370 | Mediated Communication | |
| COMM371 | Communication and Digital Media | |
| COMM375 | Documentary Theory and Practice | |
| COMM386 | Experiential Learning | |
| COMM388 | Communication Practicum | |
| COMM425 | Negotiation and Conflict Management | |
| COMM426 | Conflict Management | |
| COMM455 | Speechwriting | |
| **Specialization Electives** | | |
| Select four of the following specialization electives: [1] | | 12 |
| COMM330 | Argumentation and Public Policy | |
| COMM340 | Communicating the Narrative | |
| COMM341 | Environmental Communication | |
| COMM360 | The Rhetoric of Black America | |
| COMM428 | Special Topics Seminar in Dialogues and Deliberation | |
| COMM450 | Ancient Worlds of Rhetoric | |
| COMM452 | Rhetoric, Technology, and Culture | |
| COMM456 | Freedom of Speech & the First Amendment | |
| COMM458 | Seminar in Political Communication | |
| COMM460 | Public Life in American Communities, 1634-1900 | |
| COMM461 | Voices of Public Leadership in the Twentieth Century | |
| COMM469 | The Discourse of Social Movements | |
| **Total Credits** | | **36** |

[1] The same course cannot be used to fulfill more than one requirement.

# Public Relations

| Course | Title | Credits |
|---|---|---|
| **Communication Theory & Principles** | | |
| COMM201 | Introduction to Public Relations | 3 |
| Select one of the following: | | 3 |
| COMM301 | Rhetorical Theories | |
| COMM302 | Communication Science Theories | |
| COMM303 | Media Theory | |
| **Research Methods** | | |
| COMM304 | Communication Research Literacy | 3 |
| Select one of the following Research Methods courses: | | 3 |
| COMM305 | Qualitative Communication Research Methods | |
| COMM306 | Rhetorical Methods in Communication | |
| COMM307 | Quantitative Methods in Communication | |
| **Communication & Society** | | |
| Select one of the following Leadership & Social Change courses: | | 3 |
| COMM330 | Argumentation and Public Policy | |
| COMM385 | Influence | |
| COMM420 | Theories of Group Discussion | |
| COMM421 | Communicating Leadership | |
| COMM422 | Communication Management | |
| COMM424 | Communication in Complex Organizations | |
| COMM425 | Negotiation and Conflict Management | |
| COMM428 | Special Topics Seminar in Dialogues and Deliberation | |
| COMM436 | Interpersonal Arguing | |
| COMM448 | Special Topics in Public Relations | |
| COMM449 | Special Topics in Digital Communication | |
| COMM455 | Speechwriting | |
| COMM459 | Special Topics in Science Communication | |
| COMM461 | Voices of Public Leadership in the Twentieth Century | |
| COMM462 | Visual Communication | |
| COMM469 | The Discourse of Social Movements | |
| COMM470 | Listening | |
| COMM475 | Persuasion | |
| Select one of the following Diversity & Inclusion courses: | | 3 |
| COMM324 | Communication and Gender | |
| COMM360 | The Rhetoric of Black America | |
| COMM382 | Essentials of Intercultural Communication | |
| COMM454 | Rhetoric of the 1960s | |
| COMM460 | Public Life in American Communities, 1634-1900 | |
| **Applied** | | |
| COMM331 | News Writing and Reporting for Public Relations | 3 |
| COMM386 | Experiential Learning | 3-6 |
| **Specialization Electives** | | |
| COMM351 | Public Relations Techniques | 3 |
| COMM353 | New Media Writing for Public Relations | 3 |
| COMM483 | Senior Seminar in Public Relations | 3 |
| COMM476 | Language, Communication, and Action | 3 |
| **Total Credits** | | **36-39** |

## GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Rhetoric Minor (COMM)

**Department of Communication**
**Department of English**
1128 Tawes Hall
Phone: 301-405-3825
http://rhetoric.umd.edu

**Program Coordinators:** Cecilia Shelton, Ph.D. and Carly Woods, Ph.D.

Conceived for undergraduates entering any discipline, field, or career, the vision behind the Rhetoric Minor is to provide students with ways of seeing the world as a place open to change and skills for acting on its possibilities.

The Rhetoric Minor is an interdisciplinary program supported jointly by the Department of Communication and the Department of English. The minor educates students to understand and analyze the history, theory, and criticism of civic discourse and cultural practices. Course offerings feature both applied and theoretical approaches. Knowledge and skills acquired through the minor empower graduates to engage with important social issues and take active leadership roles in their communities and careers.

## Entering the Minor

The College of Arts and Humanities has established a maximum enrollment in the Rhetoric minor. Students wishing to pursue the minor should check the Arts and Humanities minor website: http://arhu.umd.edu/academics/undergraduate-studies/minors/.

When enrollment in the minor is open, students should submit the online contact form (http://arhu.umd.edu/rhetoric/) to initiate the process of meeting with an advisor and officially declaring the minor. University regulations specify that “to ensure appropriate academic advising, students who wish to pursue a minor should inform both the college responsible for their major and the unit offering the minor as early as possible, but in no case later than one full academic year before the expected date of graduation.” We recommend you seek admission to the minor and receive advising within the first six credits of your minor.

## REQUIREMENTS

**Fifteen semester hours of coursework are required:**

| Course | Title | Credits |
|---|---|---|
| Select six semester hours from the course list in Rhetorical Theory and Analysis of Discourse | | 6 |
| Select six semester hours from the course list in Writing and Speaking Skills | | 6 |
| Select three semester hours in electives from either section of the Rhetoric Course List | | 3 |
| **Total Credits** | | **15** |

1. At least nine of the fifteen semester hours must at the 3xx-level or higher (including at least six hours at the University of Maryland, College Park)
2. No more than six of the fifteen semester hours may be taken at an institution other than the University of Maryland, College Park
3. No more than six of the fifteen semester hours may count toward the student's major and supporting courses
4. At least 3 semester hours must be taken in the English Department, and at least 3 semester hours must be taken from the Department of Communication
5. No course used to satisfy a Fundamental Studies requirement may count toward the minor
6. No course used to satisfy the requirements of another minor may count toward the rhetoric minor
7. No course grade below the grade of "C-" may count toward the minor
8. An overall GPA of 2.0 in the minor is required for graduation

## ADVISING

Rhetoric minors receive advising through the English Undergraduate Studies Office. Students are encouraged to communicate with an advisor at least once a semester to verify that all courses they hope to apply to the minor are eligible, to maintain a plan for all minor requirements to be fulfilled, to complete a senior-year audit of minor requirements, and/or to seek answers to other advising questions.

English Undergraduate Studies Office
1128 Tawes Hall
7751 Alumni Drive
College Park, MD 20742
Phone: 301-405-3825
english@umd.edu

## Minor Coordinators

Department of Communication
Carly Woods
2118 Skinner Building
Phone: 301-405-6523
cswoods@umd.edu

Department of English
Cecilia Shelton
2119 Tawes Hall
sheltonc@umd.edu

# Creative Placemaking Minor (ARHU)

creativeplaceminor@umd.edu
http://go.umd.edu/creativeplace (https://art.umd.edu/academic-programs/creative-placemaking-minor/)

**Director:** Professor Ronit Eisenbach, RA

The Creative Placemaking minor is a joint program of the School of Architecture, Planning, and Preservation and the College of Arts and Humanities. This minor educates students to leverage the power of the arts, culture, and creativity for the support of vibrant communities,

by engaging with local stakeholders and arts practitioners. This minor currently offers two concentrations, one focusing on architecture design and the other on the visual arts. The program is open to all majors, but priority admission will be given to students majoring in Architecture and Studio Art.

## Program Learning Outcomes

1. Students will have the opportunity to develop and demonstrate an understanding of the basic concepts of and approaches to Creative Placemaking, as well as the political, social, economic, and ethical dimensions involved in Placekeeping and Placesharing.
2. Students will be able to evaluate places through inquiry, observation, research, and the application of a critical lens to gain understanding of the complexity, richness, and character of places and our relationship(s) to them.
3. Students will be able to demonstrate an ability to analyze and consider how design choices and artistic representations shape experience and elevate particular ways of knowing and being that reflect specific cultural heritage and values.
4. Students will be able to demonstrate an appreciation of the roles that architects and artists can play in supporting the shaping of human landscapes as works in progress.
5. Students will be able to demonstrate a technical and/or artistic skill that advances the collaborative and creative process and placemaking through visual, performative, written, and/or oral means.
6. Students will be able to demonstrate an ability to envision, conceive, collaborate, and create responsive works for and with places and people.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| ARCH350 | (Introduction to Creative Placemaking) | 3 |
| **Concentration (choose one of the following):** | | **6** |
| Concentration in Architecture (6 credits): | | |
| ARCH409 | (Studio in Creative Placemaking) | |
| Concentration in the Visual Arts (6 credits): | | |
| ARTT426 | Advanced Painting: Painting on Site I | |
| ARTT427 | Advanced Painting: Painting on Site II | |
| ARHU439 | Interdisciplinary Studies in Arts and Humanities (ARHU439C Studio in Creative Placemaking) [1] | |
| **Electives (Choose at least 6 credits from the following list):** [2] | | **6** |
| http://art.umd.edu/academic-programs/creative-placemaking-minor/creative-placemaking-minor-electives (http://art.umd.edu/academic-programs/creative-placemaking-minor/creative-placemaking-minor-electives/) | | |
| **Total Credits** | | **15** |

[1] ARHU439C Studio in Creative Placemaking may be repeated to 6 credits if content differs.

[2] Students may take no more than 3 elective credits from the same department without special approval by CRPM director; Special topics and independent studies courses will require the permission of the director.

# English Language and Literature

**College of Arts and Humanities**

1128 Tawes Hall
Phone: 301-405-3825
english@umd.edu
http://english.umd.edu

Our graduates are creative thinkers and global visionaries who put their deep study of literature, writing, rhetoric, and media to work in a range of fields from education, politics, and law to publishing, marketing, and communications. Majors study independently and alongside intellectually and culturally diverse scholars and students to gather, analyze, and disseminate information that connects important civic and cultural topics of our past, present, and future. Students hone their critical and creative reasoning through their chosen specialization in literary and cultural studies; creative writing; media studies; or language, writing, and rhetoric. Our curriculum inspires flexibility and provides unparalleled opportunities to apply what you learn to internships with institutions in the Baltimore-Washington, D.C. area. Graduates develop the following abilities crucial to today's knowledge-based economy:

- Writing expertise in diverse genres relevant to literary, rhetorical, linguistic, and media inquiry
- Identifying and using relevant cultural historical information to situate creative and rhetorical texts in time, place, and tradition
- Selecting and analyzing appropriate information sources, both print and digital, to synthesize, integrate, and credit those sources in their own work
- Suitably analyzing underrepresented experiences and cultural diversity, including structural and institutional inequity, using texts written by and about those culturally marginalized due to their race, ethnicity, gender, sexuality, class, and/or physical or mental ability.

Students also gain the following abilities in their selected major track:

- Producing close readings of texts that integrate terms and concepts related to literary expression and to literature's function as a historical and cultural force (Literary and Cultural Studies)
- Analyzing the relationship between language, thought, and communication and applying the power of language and other symbol systems to reach audiences and shape social realities (Language, Writing, and Rhetoric)
- Producing media analyses that integrate knowledge of how the material production, technologies, and cultural practices of diverse types of media shape meaning (Media Studies)
- Dexterity in one or more genres of creative writing and an understanding of the history and methods of craft (Creative Writing)

## Comparative Literature Program (CMLT)

Courses in Comparative Literature offer students the opportunity to engage in literary and media studies outside of a single national or linguistic range. Students with an interest in multiple languages and cultures may develop their ability to contextualize different literary, media, and artistic traditions within a global rubric. Courses on Global Literature and Social Change, World Literature by Women, Black Diaspora Literature and Culture, Literature of the Americas, and Film Art in a Global Society, among others, cultivate a sense of the transnational nature of cultural production and consumption. Knowledge of a language other than English is not required.

# PROGRAMS

## Majors

- Cinema and Media Studies Major (ENGL) (p. 173)
- English Language and Literature Major (p. 175)

## Minors

- Creative Writing Minor (p. 174)
- Digital Storytelling and Poetics Minor (p. 175)
- Humanities, Health, and Medicine Minor (p. 177)
- Professional Writing Minor (p. 177)
- Rhetoric Minor (ENGL) (p. 178)

# ADVISING

## Academic and Career Advising

Academic advising for English majors, English/Secondary Education double majors, Creative Writing minors, Digital Storytelling and Poetics minors, Professional Writing minors, and Rhetoric minors is available throughout the year. Departmental academic advising is mandatory for all English majors and English/Secondary Education double majors each semester. Students should check Testudo for their registration date and schedule an advising appointment (https://english.umd.edu/academic-programs/undergraduate/advising/) for at least one week in advance of that date.

The University Career Center provides advising year-round via two full-time career advisors housed within the College of Arts and Humanities (ARHU). Each semester, both ARHU and the English Department host a variety of events aimed at assisting students in internship and career searches. Examples include resume workshops, networking events, industry-specific career panels, opportunities to intern for a day, and career fairs.

Additionally, the English Department offers an academic course, ENGL 497: English at Work, that helps English majors learn how to apply their academic knowledge and skills to the professional workplace after graduation.

## Academic Benchmarks

Students pursuing the major should review the academic benchmarks established for this program. See: http://4yearplans.umd.edu. Students will be periodically reviewed to ensure they are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

To review the academic plans for the English major and English/Secondary Education double major, go to http://arhu.umd.edu/academics/advising/academic-plans/.

# OPPORTUNITIES

## Internships

The department sponsors numerous internships and also offers credit for outside pre-professional internships focused on writing, research, or media. Departmental internships include: Maryland General Assembly Internship, Dickinson Electronic Archives Digital Humanities Internship, Maryland Institute for Technology in the Humanities (MITH) Internship, Writing Center Internship, and Undergraduate Teaching Assistants Internship. For information, visit http://english.umd.edu/academic-programs/beyond-classroom/internships/.

## Honors Program

The English Honors Program offers lively and challenging seminars, the opportunity to complete a long-term project in an area of special interest, and an intellectual community resembling what one might find at a small liberal arts college. Students work closely with faculty mentors and peers, developing a senior project through both seminars and independent study. Interested students should ask for details from an English Department advisor as early as possible in their college careers. Applications are usually submitted in the fall of the third year. For information, visit http://english.umd.edu/academic-programs/undergraduate/honors-program/.

## Scholarships and Financial Assistance

The English department offers two scholarships, the Dawn M. Sisas Scholarship and the Kwiatek Scholarship. The Sisas Scholarship goes to an outstanding English major who attended Southern High School in Anne Arundel County. The Kwiatek Scholarship goes to several outstanding English majors each year to defray academic expenses.

Beyond the English department, the Office of Student Financial Aid administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit http://financialaid.umd.edu.

## The Writing Center

The Writing Center, 1205 Tawes Hall, 301-405-3785, provides free consultations to undergraduate students with writing assignments. In a supportive atmosphere, trained consultants from a variety of backgrounds and majors assist writers in-person and online throughout all stages of the composition process. The Writing Center also facilitates collaborations and workshops on topics related to writing and teaching writing. Appointments are recommended, but walk-ins are welcome based on the availability of tutors. Appointments can be made by visiting the Writing Center's website: http://english.umd.edu/writing-programs/writing-center/. Students, faculty, and staff who have quick questions about punctuation, sentence structure, word choice, or documentation may call the Writing Center's Grammar Hotline at 301-405-3785.

## Awards and Recognition

### Academic Excellence in English

The English Department Academic Excellence Awards are presented each spring to students graduating in English with the most outstanding academic records in their major coursework. Winners receive a certificate and a book written by a department faculty member.

### Henrietta Spiegel Creative Writing Award

This award is bestowed each spring to honor undergraduate work in creative writing judged by the Creative Writing faculty to be the most outstanding. It is named for the oldest person ever to complete an undergraduate degree at the University of Maryland (B.A. in English, 1989, at age 92).

### Joseph W. Houppert Memorial Shakespeare Prize

This prize, named for a distinguished member of the department who served from 1963 until his death in 1979, is awarded each spring to the

undergraduate who has written the best essay on Shakespeare during the academic year.

### Joyce Tayloe Horrell Award

This award, in memory of a master teacher in the English Department from 1960 to 1967, is conferred annually on the English major who has demonstrated the highest academic achievement among the graduating class.

### Sandy Mack Award for Outstanding Work in English Honors

This prize, which is given each spring to the student with the most outstanding overall record in English Honors, is named for the faculty member who developed the English Honors Program and guided it for many years.

### Sara Ann Soper Undergraduate Service Award

This award honors a graduating senior who has volunteered time, energy, and commitment to community service. It memorializes the mother of a 1989 English graduate, Shannon Altman, who endowed it.

# Cinema and Media Studies Major (ENGL)

**College of Arts and Humanities**
3212 Jiménez Hall
Phone: 301-405-4025
umdfilm@umd.edu
http://film.umd.edu

**Program Director:** Caroline Eades, Ph.D.

Cinema and Media Studies is an interdisciplinary program in the humanities that enables students to explore an influential global art form in its aesthetic, cultural, economic, historical, and technological dimensions. The major takes a critical, textual approach to film, emphasizing scholarly viewing, interpreting, and writing about moving images. It provides students with a solid background in theoretical, critical, and aesthetic aspects of the study of film, including the history of the medium and the analysis of national cinemas, always keeping in view questions of how new media have changed both cinema itself and the study of cinema. The Cinema and Media Studies major brings together courses in cinema from varied nations, languages, and cultures and challenges students to understand the systems of transnational exchange that have characterized this medium from its inception.

Courses offered by this program may be found under the following acronyms: FILM (being phased out), CINE, ENGL, and SLLC.

## Program Objectives

The major in Cinema and Media Studies teaches the fundamental skills required for a range of professional careers: critical thinking, historical awareness, research, information management, cogent development of ideas, and strong written and oral communication. Students will work toward competence in film and media analysis, critical viewing and writing, and visual literacy at a time when our culture is becoming increasingly dependent upon visual communication.

## Program Learning Outcomes

1. Students will be able to analyze and interpret film aesthetics and technical structures of editing, cinematography, sound, and mise-en-scene.
2. Students will be able to identify and analyze diverse genres and movements in the history of film.
3. Students will be able to situate films produced in various parts of the world in relation to larger historical and cultural developments.
4. Students will understand the various uses of the moving image in its relation to the political, economic, and social history of the world over the past century.
5. Students will be able to conduct research in Cinema and Media Studies and to write persuasively.

## REQUIREMENTS

The Cinema and Media Studies major has four parts: a prerequisite course in Film Form (ENGL245/CINE245), a two-course Film History and Theory Foundation (CINE301 and CINE302), a six-course Film Criticism Core, and four Film Electives. The first two parts of the program assure that students have the necessary analytical tools and historical background to interpret diverse global cinematic traditions. The Film Criticism Core and Film Electives offer students the opportunity to explore genres, themes, and movements across different historical periods and to develop their skills in analysis, writing, and research.

## General Policies

- The Cinema and Media Studies major requires 39 credits (13 courses).
- A grade of "C-" or better is required in each of the courses making up the 39 credits of the major.
- Up to nine (9) credits may be taken at the 2xx-level.
- At least 6 of the 39 credits must be at the 4xx-level.

The Cinema and Media Studies major requires 39 credits, distributed as follows:

| Course | Title | Credits |
|---|---|---|
| **Film Form** | | |
| CINE/ENGL245 | Film Form and Culture | 3 |
| Equivalent by permission of department | | |
| **Film History and Theory Foundation** [2] | | |
| CINE301 | Cinema History I: The Silent Era | 3 |
| CINE302 | Cinema History II: The Sound Era | 3 |
| **Film Criticism Core Requirement** [3] | | |
| Select one course in Film Theories | | 3 |
| Select two courses in Genres/Auteurs/Movements | | 6 |
| Select two courses in National and International Cinemas | | 6 |
| Select one course in Documentary, Animation, Experimental Cinema or other Visual Media | | 3 |
| **Film Electives** [4] | | |
| Select an option: | | 12 |
| Option One: | | |
| Select two courses from the Film Criticism category, any rubric | | |
| Select two courses from the Film Electives category | | |
| Option Two: | | |

| | |
|---|---|
| Select four courses in Film Electives that create a coherent emphasis [5] | |
| **Total Credits** | **39** |

1. Fulfills Gen Ed req. in Humanities. Cinema and Media Studies majors must take ENGL245/CINE245 before they take other 3xx or 4xx-level Cinema and Media Studies courses. We recommend that it be taken no later than sophomore year.
2. Students may take the two courses in any order.
3. At least one course in this category must be taken at the 4xx-level. For a list of courses that will satisfy each sub-category, please see https://sllc.umd.edu/fields/cinema-media/courses/.
4. Up to two courses in this category may be taken at the 2xx-level. At least one must be taken at the 4xx-level. Please consult the full list of courses accepted for the major: https://sllc.umd.edu/fields/cinema-media/courses/.
5. The four courses should be selected in consultation with the Cinema and Media Studies Advisor to allow students to explore a specific area of interest or an area related to their future academic or professional plans.

## Other Requirements for the Major

CINE245 is a prerequisite for many 3xx-level courses in the major. Students are advised to complete that course early in their academic careers. Successful completion of CINE245 allows students to proceed to two courses required for the major: CINE301 and CINE302.

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# ADVISING

Academic advising is available throughout the year. Departmental academic advising is mandatory for all Cinema and Media Studies majors before registration for classes. Students should check Testudo (http://testudo.umd.edu) for their registration date and schedule an advising appointment for at least one week in advance of their date. Advising appointments can be made via email: filmadvising@umd.edu.

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

# OPPORTUNITIES

## Internships

Cinema and Media Studies offers students the opportunity to earn academic credit in connection with an internship, through CINE388 (Experiential Learning). Admission to CINE388 is by application only. See http://film.umd.edu for more details.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# Creative Writing Minor

**Department of English**
1128 Tawes Hall
Phone: 301-405-3825
english@umd.edu
http://english.umd.edu

**Director of Undergraduate Studies:** Scott Trudell, Ph.D.

The minor in Creative Writing offers students the opportunity to engage deeply with their own writing and that of their peers in a graduated series of workshops led by professional writers of poetry and prose.

To make an appointment to explore or declare a minor, go to http://arhu.umd.edu/academics/undergraduate-studies/minors/ and complete a minor contact form, or contact the English Undergraduate Studies Office at english@umd.edu.

# REQUIREMENTS

The minor in Creative Writing offers students the opportunity to engage deeply with their own writing and that of their peers in a graduated series of workshops led by professional writers of poetry and prose.

***The Creative Writing minor's 15 credits consist of the following:***

| Course | Title | Credits |
|---|---|---|
| Select three credits at the 2xx-level of the following: | | 3 |
| ENGL271 | Writing Poems and Stories: An Introductory Workshop | |
| ENGL272 | Writing Fiction: A Beginning Workshop | |
| ENGL273 | Writing Poetry: A Beginning Workshop | |
| AASP/ ENGL274 | Creative Writing Through The Eyes of African Americans: A Beginning Workshop | |
| Select one of the following: | | 3 |
| ENGL352 | Intermediate Fiction Workshop | |
| ENGL353 | Intermediate Poetry Workshop | |
| Select two sections of the following: | | 6 |
| ENGL498 | Advanced Fiction Workshop | |
| ENGL499 | Advanced Poetry Workshop | |
| Select three credits in any upper-level English Literature course | | 3 |
| **Total Credits** | | **15** |

After admission to the minor, students choose to specialize in either prose (ENGL352, ENGL498) or poetry (ENGL353, ENGL499). Students admitted directly to a 3xx-level workshop must take three workshops (9 credits) at the 4xx-level.

No course grade below the grade of "C-" may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

# Digital Storytelling and Poetics Minor

**Department of English**
1128 Tawes Hall
Phone: 301-405-3825
english@umd.edu
http://english.umd.edu

**Director of Undergraduate Studies:** Scott Trudell, Ph.D.

This minor prepares students to interpret, and to create, imaginative writing in digital and new media spaces. Students build the skills necessary to critically analyze digital culture, narrative, poetics, and rhetoric. They also learn how to craft creative expression in digital platforms. These skill sets are combined: a foundation in critical methods in English and new media studies provides a basis for the craft of digital writing and design. And understanding of the process of creating digital poetry and prose provides context and insight for effective critical analysis. During their coursework, students develop digital portfolios of critical and creative work as a means to showcase their career-facing knowledge and skills.

## Program Learning Outcomes

1. Define, describe, and produce examples of digital storytelling and poetics, such as combinatory poetry and interactive fiction.
2. Explain the functions, aesthetics, and cultural influences of your own creative media, and the broader uses of technology in crafting narratives.
3. Express the historical through-lines connecting the printed book—and specifically 20th-century avant-garde print literature—to more contemporary digital poetics, such as techniques of sampling, remixing, and the use of found media and aleatory methods.
4. Understand and analyze the kinship digital storytelling and poetics shares with games, narrative fiction, conceptual writing, and experimental and avant-garde literature.
5. Commit to the responsible use of AI in your creative practice and understand the environmental costs of digital storytelling and poetics.
6. Build on and apply the skills introduced in course lab sessions to create a final student portfolio showcasing proficiency, versatility, and point of view with regards to digital storytelling and poetics.

## REQUIREMENTS

Successful completion of the Digital Storytelling and Poetics minor requires the following:

| Course | Title | Credits |
|---|---|---|
| ENGL295 | Introduction to Digital Storytelling and Poetics (Introduction to Digital Storytelling and Poetics) | 3 |
| Approved courses (at least twelve credits at the 3xx- or 4xx-level, with three credits at the 4xx-level), including: [1] | | 12 |
| • A minimum of one course (three credits) on critical analysis & theory, and | | |
| • A minimum of one course (three credits) on craft & creative process. | | |
| **Digital Portfolio** | | |
| Submission of a portfolio of critical and creative work is required. [2] | | |
| **Total Credits** | | **15** |

[1] See https://go.umd.edu/digitalstorytelling (https://go.umd.edu/digitalstorytelling/) for an up-to-date list of approved courses.

[2] Successful completion of the Digital Storytelling and Poetics minor requires the submission of a digital portfolio during a student's final semester. This portfolio must be submitted electronically to the minor advisor at english@umd.edu by November 1 for fall semester graduation, April 1 for spring semester graduation, or August 1 for summer graduation. The portfolio must contain, at a minimum, the following material:

1. A welcome page
2. Five finished, polished texts produced by the student in Digital Storytelling and Poetics minor courses, including a minimum of one critical essay and one creative work
3. A reflective essay that explains how these texts demonstrate the student's achievement of the minor's learning outcomes

The minor advisor will confirm that each portfolio meets these minimum requirements.

**Notes:**

1. Following university policy, English majors may count two Digital Storytelling and Poetics minor courses toward both the requirements for the English major and the Digital Storytelling and Poetics minor.
2. Students must be accepted into the minor no later than the start of the semester before the semester in which they plan to graduate.
3. All courses presented for the minor must be passed with a grade of "C-" or better.
4. An overall GPA of 2.0 in the minor is required for graduation.

# English Language and Literature Major

**Undergraduate Studies Director:** Scott Trudell, Ph.D.

The English major includes five main elements, which are together designed to introduce students: (1) to the basic approaches for studying literature, rhetoric, and media; (2) to the structures and effects of the English language; and (3) to theories and practices of writing from the creative to the professional. The major offers students a foundation in multiple scales of history, from the local to the global, and in forms, methods, and writing—all with a sustained focus on civic and cultural engagement. Students also develop their own area of specialization, choosing from: literary and cultural studies; creative writing; media studies; or language, writing, and rhetoric. The major's flexibility lets students participate liberally in a wealth of experiential- or service-learning opportunities around the department, the university, and the D.C. metro area, as well as to pursue a sustained research or creative project as part of our English Honors Program. These elements and opportunities together allow students to prepare for careers in fields such as education, law, journalism, creative writing, communications, professional writing, game or film development, and information science. Courses offered by the English Department may be found under the acronyms ENGL and CMLT.

## Program Learning Outcomes

Our English graduates develop the following abilities crucial to today's knowledge-based economy:

1. Writing expertise in diverse genres relevant to literary, rhetorical, linguistic, and media inquiry
2. Identifying and using relevant cultural historical information to situate creative and rhetorical texts in time, place, and tradition
3. Selecting and analyzing appropriate information sources, both print and digital, to synthesize, integrate, and credit those sources in their own work
4. Suitably analyzing underrepresented experiences and cultural diversity, including structural and institutional inequity, using texts written by and about those culturally marginalized due to their race, ethnicity, gender, sexuality, class, and/or physical or mental ability
5. Producing close readings of texts that integrate terms and concepts related to literary expression and to literature's function as a historical and cultural force (Literary and Cultural Studies Track)
6. Analyzing the relationship between language, thought, and communication and applying the power of language and other symbol systems to reach audiences and shape social realities (Language, Writing, and Rhetoric Track)
7. Producing media analyses that integrate knowledge of how the material production, technologies, and cultural practices of diverse types of media shape meaning (Media Studies Track)
8. Dexterity in one or more genres of creative writing and an understanding of the history and methods of craft (Creative Writing Track)

## English and English Education Double Major

In conjunction with the College of Education, the English Department offers a special 125-credit program for students wishing to double major in English and Secondary Education, allowing them to earn a certificate to teach English for grades 7-12. For a list of requirements, contact the English Undergraduate Studies Office at english@umd.edu. For more information about the English and English Education Double Major, see the College of Education (p. 364) section of the Undergraduate Catalog.

# REQUIREMENTS

1. The English major requires 36 credits beyond the university's Fundamental Studies requirements in ENGL101 and ENGL391, ENGL392, ENGL393, ENGL394, ENGL395, ENGL398. No more than two courses at the 1xx- or 2xx- level may be counted toward the major, and at least 12 credits must be at the 4xx-level.

2. A grade of C- or better is required to apply a course to the major. Students must maintain a minimum GPA of 2.0 within the major.

3. Up to six credits of ENGL388 (Internship) may be included in the 36 credits, but not all of those credits may come from the same version of ENGL388. In other words, students must enroll in two or more courses with different letter suffixes (e.g., 388W and 388V).

4. No more than three credits of ENGL429 (Independent Study) may be included in the 36 credits.

5. One 3xx- or 4xx- level course in literature, rhetoric, or media in a language other than English, whether in the original language or in translation, may count as an elective.

| Course | Title | Credits |
|---|---|---|
| **Element 1** | | |
| ENGL301 | This is English: Fields and Methods [1] | 3 |
| **Element 2: Historical Studies** | | **12** |
| Students must take four courses in historical studies. They are encouraged to take a course in all four broad historical periods and required to select courses in a minimum of three: | | |
| Beginning, Medieval, and Early Modern | | |
| Long Eighteenth Century | | |
| Long Nineteenth Century | | |
| Modern and Contemporary | | |
| **Element 3: Tracks** | | **12** |
| Majors select a track from among those listed below, and take four courses in that track. Restrictions: Courses must be taken at the 2xx-, 3xx-, and/or 4xx-levels. Students cannot overlap their track credits with credits applied to the Rhetoric or Professional Writing minors; students cannot pursue the Creative Writing track and also be a Creative Writing minor. If a course counts toward more than one requirement within a track, it may only be used to fulfill a single requirement. | | |
| **Element 4: Electives** | | **9** |
| Elective credits may be filled by any English department course or any approved course outside of the department. | | |
| **Element 5: Perspectives, Methods, and Writing** | | |
| This last element is a set of co-requirements, meaning that these should be fulfilled in the process of completing Elements 2-4 of the major and do not themselves add credits to the degree. | | |
| Restriction: Students cannot count the same course for more than one of these co-requirements. | | |
| Differences and Diasporas | | |
| Methods (must be taken at the 2xx-, 3xx-, or 4xx- level) | | |
| Advanced Writing (must be taken at the 3xx- or 4xx- level) | | |
| **Total Credits** | | **36** |

[1] English majors must take ENGL301 before they take other 3xx or 4xx level English courses or concurrently with taking their first of those courses.

## Tracks

## Literary and Cultural Studies Track

| Course | Title | Credits |
|---|---|---|
| Take one course on each of the following topics, leaving the remaining credits open for any literature course: | | 12 |
| Form, Genres, and Poetics | | |
| National, Transnational, and/or Global Literatures | | |
| **Total Credits** | | **12** |

## Language, Writing, and Rhetoric Track

| Course | Title | Credits |
|---|---|---|
| Take one course on each of the following topics, leaving the remaining credits open for any language, writing, or rhetoric course: | | 12 |

| | |
|---|---|
| History, Analysis, and Theory | |
| Practice, Performance, and Pedagogy | |
| **Total Credits** | **12** |

## Media Studies Track

| Course | Title | Credits |
|---|---|---|
| Take one course in at least two of the following categories (two courses total), leaving the remaining credits open for any media course: | | 12 |
| Print and Script | | |
| Music and Sound | | |
| Image and Moving Image | | |
| Digital Cultures | | |
| **Total Credits** | | **12** |

## Creative Writing Track

| Course | Title | Credits |
|---|---|---|
| Take one of each of the following course types, leaving the remaining credits open for any creative writing workshop course: | | 12 |
| 2xx-level Creative Writing Workshop | | |
| 3xx-level Creative Writing Workshop | | |
| Creative Form and Theory | | |
| Restriction: To enroll in a 3xx-level workshop, students must receive an A or A- in a 2xx-level workshop or must submit an acceptable portfolio of work to the Creative Writing faculty. Students may substitute one approved UMD workshop course taught outside of the English department for their 3xx-level creative writing workshop, but may not take a 4xx-level workshop in the English department without taking a 3xx-level workshop in the department. Students may only count a Creative Form and Theory course once toward their 12 credits for the track. | | |
| **Total Credits** | | **12** |

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Humanities, Health, and Medicine Minor

**Advisor:** hhmminor@umd.edu

The ARHU minor in Humanities, Health, and Medicine engages students in an interdisciplinary curriculum that applies the methods, perspectives, and insights of the arts and humanities to health and medical education as well as practice. Through an exploration of human health and medicine using the inter-disciplinary questions and research methods of literary and cultural studies, as well as the arts, philosophy, communication, and history, the minor aims to develop and nurture skills such as empathy, ethical understanding, socio-cultural analysis, self-reflection, and an appreciation of diversity and inclusion that are essential for humane and effective medical care as well as sound health policy. This minor is open to all Undergraduate students on campus, regardless of major.

## Program Learning Outcomes

1. Students aspiring to enter the health or medical professions will be able to demonstrate a fundamental understanding of the diverse historical, cultural, ethical, and spiritual dimensions of medicine, human health, disease, and death.
2. Students will be able to demonstrate a critical, interdisciplinary, empathetic, and holistic understanding of the issues and challenges faced by medical and health professionals.
3. Students will be able to analyze and evaluate complex texts relating to the social and cultural aspects of medicine through close reading and critical interpretation of arguments, metaphors, and images.
4. Students will demonstrate knowledge of the fundamentals of "real world" professional application, research, and communication in the health and medical fields, including the research of resources particular to the health professions.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| Required Core Course | | |
| ARHU230 | Introduction to Humanities, Health, and Medicine | 3 |
| ENGL395 | Writing for Health Professions [1] | 3 |
| or ENGL390 | Science Writing | |
| Take four courses in at least three of the following five core areas. [2] | | 12 |
| Arts and Literature of Health, Medicine, Disease, and Death | | |
| Philosophical, Ethical, Religious, or Spiritual Perspectives on Health, Medicine, Disease, and Death | | |
| Health Communication | | |
| Historical Perspectives on Health, Medicine, Disease, and Death | | |
| Cultural, Mental, Gender, or Social Dimensions on Health, Medicine, Disease, and Death | | |
| Co-requirements: at least one of the above courses must have a Gen Ed diversity designation | | |
| **Total Credits** | | **18** |

1 ENGL390H may also be used for this requirement.

2 For a list of courses approved for each area, follow this (https://arhu.umd.edu/humanities-health-and-medicine-minor/) link. At least six of the nine credits must be taken at the 300- or 400-level. Students may satisfy up to 3 credits of the 12-credit core area through a credit-bearing internship experience related to the minor. The internship must be approved by the Humanities, Health, and Medicine minor advisor in order to have these 3 credits count toward their minor.

# Professional Writing Minor

**Department of English**
1128 Tawes Hall
Phone: 301-405-3825
english@umd.edu
http://english.umd.edu

**Director of Undergraduate Studies:** Scott Trudell, Ph.D.

For students who wish to specialize in public and professional writing as an area of expertise or who wish to communicate their discipline through writing, the Professional Writing minor offers opportunities to engage deeply with the theory and practice of writing, editing, and designing both print and digital documents for professional workplaces, civic organizations, and community deliberations. Students develop electronic portfolios throughout their minor coursework as a means to showcase their professional writing knowledge and skills. Writing-focused internships are encouraged, although not required, in the later stages of coursework.

Students must be accepted into the minor no later than the start of the semester before the semester in which they plan to graduate. To make an appointment to explore or declare a minor, go to http://arhu.umd.edu/academics/undergraduate-studies/minors/ and complete a minor contact form, or contact the English Undergraduate Studies Office at english@umd.edu. You may also contact pwminor@umd.edu for additional information.

## REQUIREMENTS

Successful completion of the Professional Writing minor requires the following:

| Course | Title | Credits |
|---|---|---|
| **Coursework** | | |
| ENGL297 | Research and Writing in the Workplace | 3 |
| Approved courses (at least nine credits at the 3xx- or 4xx-level and three credits at the 4xx-level) [1] | | 12 |
| **Professional Writing Portfolio** | | |
| Submission of an electronic professional writing portfolio is required [2] | | |
| **Total Credits** | | **15** |

[1] See http://www.english.umd.edu/minor-pw (http://www.english.umd.edu/minor-pw/) for an up-to-date list of approved courses.

[2] Successful completion of the Professional Writing minor also requires the submission of a writing portfolio during a student's final semester. This portfolio must be submitted electronically to the minor advisor at pwminor@umd.edu by November 1 for fall semester graduation, April 1 for spring semester graduation, or August 1 for summer graduation. The electronic portfolio must contain, at a minimum, the following material:

1. A welcome page
2. Six finished, polished texts written by the student in Professional Writing minor courses; and
3. A reflective essay that analyzes how these documents demonstrate the student's achievement of the minor's learning outcomes.

The minor advisor will confirm that each portfolio meets these minimum requirements.

**Notes:**

1. Credit toward the minor will be granted for only one of these two courses: ENGL281 or ENGL384.
2. Students cannot count toward the Professional Writing minor the PWP course that they take to fulfill the Fundamental Studies Professional Writing requirement for the University of Maryland General Education Program. Only a second PWP course can be used to fulfill the Professional Writing minor requirement. Advisors will encourage students to select a second PWP course only if it complements the students' academic or professional goals.
3. Students may satisfy up to three credits of the nine-credit 3xx- or 4xx-level coursework requirement through documented writing-intensive internship experience. The internship must be approved by the Professional Writing minor advisor in order to have these three credits count toward their minor.
4. Following university policy, English majors may count two Professional Writing minor courses toward both the requirements for the English major and the Professional Writing minor.
5. Students must be accepted into the minor no later than the start of the semester before the semester in which they plan to graduate.
6. All courses presented for the minor must be passed with a grade of "C-" or better.
7. An overall GPA of 2.0 in the minor is required for graduation.

# Rhetoric Minor (ENGL)

**Department of Communication**
**Department of English**
1128 Tawes Hall
Phone: 301-405-3825
http://rhetoric.umd.edu

**Program Coordinators:** Cecilia Shelton, Ph.D. and Carly Woods, Ph.D.

Conceived for undergraduates entering any discipline, field, or career, the vision behind the Rhetoric Minor is to provide students with ways of seeing the world as a place open to change and skills for acting on its possibilities.

The Rhetoric Minor is an interdisciplinary program supported jointly by the Department of Communication and the Department of English. The minor educates students to understand and analyze the history, theory, and criticism of civic discourse and cultural practices. Course offerings feature both applied and theoretical approaches. Knowledge and skills acquired through the minor empower graduates to engage with important social issues and take active leadership roles in their communities and careers.

## Entering the Minor

The College of Arts and Humanities has established a maximum enrollment in the Rhetoric minor. Students wishing to pursue the minor should check the Arts and Humanities minor website: http://arhu.umd.edu/academics/undergraduate-studies/minors/.

When enrollment in the minor is open, students should submit the online contact form (http://arhu.umd.edu/rhetoric/) to initiate the process of meeting with an advisor and officially declaring the minor. University regulations specify that “to ensure appropriate academic advising, students who wish to pursue a minor should inform both the college responsible for their major and the unit offering the minor as early as possible, but in no case later than one full academic year before the

expected date of graduation." We recommend you seek admission to the minor and receive advising within the first six credits of your minor.

## REQUIREMENTS

**Fifteen semester hours of coursework are required:**

| Course | Title | Credits |
|---|---|---|
| Select six semester hours from the course list in Rhetorical Theory and Analysis of Discourse | | 6 |
| Select six semester hours from the course list in Writing and Speaking Skills | | 6 |
| Select three semester hours in electives from either section of the Rhetoric Course List | | 3 |
| **Total Credits** | | **15** |

1. At least nine of the fifteen semester hours must at the 3xx-level or higher (including at least six hours at the University of Maryland, College Park)
2. No more than six of the fifteen semester hours may be taken at an institution other than the University of Maryland, College Park
3. No more than six of the fifteen semester hours may count toward the student's major and supporting courses
4. At least 3 semester hours must be taken in the English Department, and at least 3 semester hours must be taken from the Department of Communication
5. No course used to satisfy a Fundamental Studies requirement may count toward the minor
6. No course used to satisfy the requirements of another minor may count toward the rhetoric minor
7. No course grade below the grade of "C-" may count toward the minor
8. An overall GPA of 2.0 in the minor is required for graduation

## ADVISING

Rhetoric minors receive advising through the English Undergraduate Studies Office. Students are encouraged to communicate with an advisor at least once a semester to verify that all courses they hope to apply to the minor are eligible, to maintain a plan for all minor requirements to be fulfilled, to complete a senior-year audit of minor requirements, and/or to seek answers to other advising questions.

English Undergraduate Studies Office
1128 Tawes Hall
7751 Alumni Drive
College Park, MD 20742
Phone: 301-405-3825
english@umd.edu

## Minor Coordinators

Department of Communication
Carly Woods
2118 Skinner Building
Phone: 301-405-6523
cswoods@umd.edu

Department of English
Cecilia Shelton
2119 Tawes Hall
sheltonc@umd.edu

# Harriet Tubman Department of Women, Gender, and Sexuality Studies

**College of Arts and Humanities**
3121 Susquehanna Hall
Phone: 301-405-6877
wgss@umd.edu
http://wgss.umd.edu

Women, Gender, and Sexuality Studies is an interdisciplinary field of inquiry analyzing structures of power, especially as they are grounded in gender, race, sexuality, ethnicity, nationality, ability, and other inequalities, and as they configure historical and contemporary struggles for social change. The department and faculty enjoy a global reputation for innovative theoretical and methodological interventions and for their attention to curriculum transformation and global women's studies institution building. With a core faculty of eight and more than 80 affiliate faculty from across the campus, the program offers a B.A., M.A./Ph.D., undergraduate and graduate certificates in women, gender, and sexuality studies, a minor in black women's studies, and an undergraduate minor and certificate in LGBTQ studies.

## PROGRAMS

### Major

- Women, Gender, and Sexuality Studies Major (p. 183)

### Minors

- Black Women's Studies Minor (ARHU) (p. 181)
- LGBTQ Studies Minor (p. 182)

### Certificates

- LGBTQ Studies Certificate (p. 181)
- Women, Gender, and Sexuality Studies Certificate (p. 183)

## ADVISING

Advising is mandatory for all majors each semester. Please email wgss@umd.edu or call 301-405-6880 for assistance scheduling an appointment.

Certificate students and minors are also encouraged to consult with the Harriet Tubman Department of Women, Gender, and Sexuality Studies academic advisor prior to registration each semester.

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

## OPPORTUNITIES

### Experiential Learning (WGSS Scholarship in Practice Requirement)

As part of the major, students are required to complete a hands-on, practical learning experience. They may do so through a teaching assistantship, an undergraduate internship, or a research or creative works assistantship. Students in the certificate and minor programs may also apply for experiential learning.

The Undergraduate Teaching Assistantship (UTA) is an opportunity to work closely supporting a member of the department faculty in an undergraduate course. This structure allows UTAs to build expertise, develop pedagogical competencies, and strengthen their knowledge base in the areas of feminist, critical race, and queer pedagogical debates and approaches. This is especially relevant for students interested in careers in teaching or academia. UTA positions in WGSS are unpaid and credit bearing, students are required to enroll in 3 credits of WGSS358. Priority for teaching assistantships is given to students who have successfully completed the course they wish to TA. Positions are advertised during the registration period for the semester in which they occur and assistants are chosen by the faculty member who they will support.

The Undergraduate Internship experience is designed to provide students with the opportunity to combine theory and practice and get hands on experience with women's, gender, and sexuality issues in a workplace or organizational setting. The course has two components: work at the internship setting developing practical skill sets applicable to that environment, and work with a faculty mentor to prepare readings and/or research that provide a framework to think about the internship experience and an opportunity to reflect on the pragmatic and political issues. Internships can be taken for 3 - 6 credits of WGSS368 based on the combined number of hours worked at the internship site and on associated academics. Students seek internship opportunities in local, state and federal governments, non-profit organizations, policy and research institutions as well as agencies committed to social change. Past internship sites have included: MCASA-Maryland Coalition Against Sexual Assault, NAACP Maryland State Conference, National Organization for Women, Institute for Women's Policy Research, HIPS, League of Women Voters of Maryland, Sinister Wisdom lesbian literary and art journal, Jewish Women International, Asian Pacific Islander Domestic Violence Resource Project, D.C. Rape Crisis Center, the District Alliance for Safe Housing, the State of Maryland Lt. Governor's Office and other state and national legislative offices. To learn more about the Internship program visit http://wgss.umd.edu/academic-programs/undergraduate/experiential-learning/.

The Undergraduate Research and Creative Works Assistant (URCA) provides an opportunity to work alongside a faculty mentor to develop an enhanced understanding of specific research methods and/or creative practices; the overall goal is to provide students with an understanding of how field contributions are made, either by crafting their own research contributions, or providing support for a faculty mentor's ongoing research. Positions are generally advertised during the registration period in which they occur and are chosen by the faculty member who will be directing them. All URCA students register for 3 credits of WGSS378.

## Departmental Honors Program

The Honors Program (https://wgss.umd.edu/academic-programs/undergraduate/experiential-learning/) is designed to give students the opportunity to pursue an area of passionate academic interest in greater depth than that allowed by formal classes. Honors students engage in rigorous interdisciplinary research under the close supervision and mentorship of a department faculty member. Students can be expected to gain a deeper understanding of some aspect of women's, gender, and/or sexuality studies and to develop habits of self-reliance, individual initiative, and critical analysis. The culminating thesis may be a sustained piece of writing or a substantial creative or activist project. Applications to the Departmental Honors Program are accepted in mid-Fall and mid-Spring.

## Student Community

The Harriet Tubman Department of Women, Gender, and Sexuality Studies (WGSS) strives to build a vibrant community of students. Undergraduate and graduate students are given voice at the department level through the election of a student representative who participates in department faculty meetings. The department has a vibrant series of Social Justice Hangouts and other events held each year to bring together students and faculty from all our programs and the broader university community. To learn more about this community visit http://wgss.umd.edu/current-students/.

## Triota

Iota, Iota, Iota (Triota) is a national Women's Studies Honor Society. The UMD chapter is a student run organization that strives to maintain feminist values of egalitarianism and inclusiveness. It celebrates the diversity of experiences that are central to Women, Gender, and Sexuality Studies. Triota works to promote student research and activism in socio-political issues that affect all minority groups and aims to recognize and promote the academic achievements of students enrolled in WGSS and LGBT courses. For more information please contact wgss@umd.edu.

## Scholarships and Financial Assistance

For information about scholarships and financial assistance offered by the department, please visit http://wgss.umd.edu/academic-programs/undergraduate/scholarships-awards/.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Awards and Recognition

The department administers a variety of awards and grants to encourage and recognize outstanding scholarship, research, leadership and service.

The Rodler/Wood Scholarship (https://wgss.umd.edu/academic-programs/undergraduate/scholarships-awards/rodler-wood/) is awarded annually based on one or more of the following criteria: demonstrated financial need, hardship based on sexual orientation, academic interest in LGBT Studies, and extracurricular activities on behalf of LGBT issues. The Rodler/Wood Scholarship is presented at the annual Lavender Graduation ceremony each spring.

Each fall the department funds travel awards to support the participation of undergraduate students in the National Women's Studies Association Annual Conference. Any student in the university who has completed 12 credits of WGSS/WMST and/or LGBT courses is eligible to apply for the NWSA travel award (https://wgss.umd.edu/academic-programs/undergraduate/national-womens-studies-association/).

The department also recognizes graduating students who have excelled in academics or in service to the campus and community at our Departmental Commencement Ceremony.

For information on any of these awards, including how to apply, contact the department at wgss@umd.edu or visit http://wgss.umd.edu/academic-programs/undergraduate/scholarships-awards/.

# Black Women's Studies Minor (ARHU)

**Joint Minor in Black Women's Studies**

Women, Gender, and Sexuality Studies
College of Arts and Humanities
3121 Susquehanna Hall
Phone: 301-405-6877
http://wgss.umd.edu

African American Studies
College of Behavioral and Social Sciences
1119 Taliaferro Hall
Phone: 301-405-1158
https://aasd.umd.edu/

**WGSS Department Chair:** Neda Atanasoski, Ph.D.
**AASD Department Chair:** Sangeetha Madhavan, Ph.D.

The joint minor in Black Women's Studies focuses on the lives and experiences of women of Africa and the African Diaspora. As a specialty in the fields of Women, Gender, and Sexuality Studies and African American Studies, it will provide students with tools for understanding the social and cultural contexts in which race, gender, class, sexuality, ethnicity, nation and other dimensions of difference intersect to influence the lives and experiences of Black women.

See the African American and Africana Studies Department (p. 248) and Women, Gender, and Sexuality Studies Department (p. 179) for faculty rosters.

To make an appointment to explore or declare the minor, go to http://arhu.umd.edu/undergraduate/academics/minors/.

Students may enroll in the Black Women's Studies Minor through either African American and Africana Studies or the Harriet Tubman Department of Women, Gender, and Sexuality Studies. Students with a major in the College of Arts and Humanities are advised to enroll through the Harriet Tubman Department of Women, Gender, and Sexuality Studies. Students with a major in the College of Behavioral and Social Sciences are advised to enroll through the Department of African American and Africana Studies.

## REQUIREMENTS

Fifteen (15) credits of coursework are required, distributed below. No course with a grade less than "C-" may be used to satisfy the minor. An overall GPA of 2.0 in the minor is required for graduation. Students will design their program in consultation with the advisor in Women, Gender, and Sexuality Studies or African American Studies. No more than two courses may count toward a major in African American Studies or Women's Studies. Course lists can be found here: https://wgss.umd.edu/academic-programs/courses (https://wgss.umd.edu/academic-programs/courses/)

| Course | Title | Credits |
|---|---|---|
| **Foundation Courses** | | |
| Select one of the following: | | 3 |
| WGSS/AASP263 | Introduction to Black Women's Studies | |
| WGSS/AASP265 | Constructions of Manhood and Womanhood in the Black Community | |
| WGSS/AASP/LGBT264 | Quare/Queer Contentions: Exploration of Sexualities in the Black Community | |
| Select one of the following: | | 3 |
| WGSS314/AASP313 | Black Women in United States History | |
| HIST360 | Women and the Civil Rights Movement | |
| AASP398 | Selected Topics in the African Diaspora (AASP389G: Gender, Labor, and Racial Identity in Diasporic Communities) | |
| **Electives** | | **9** |
| **Total Credits** | | **15** |

- At least two electives must be at the 300 or 400 level.
- One 300 or 400 level course must be Comparative or non-U.S.
- See program for approved electives.

# Lesbian, Gay, Bisexual and Transgender Studies

**College of Arts and Humanities**
2101 Woods Hall
Phone: 301-405-6877
wgss@umd.edu
http://wgss.umd.edu

The Harriet Tubman Department of Women, Gender, and Sexuality Studies offers an interdisciplinary undergraduate certificate (p. 181) and a minor (p. 182) in LGBTQ Studies. These programs are designed to examine the lives, experiences, identities and representations of LGBTQ persons, those who are today described as having a minority sexual orientation or who are gender transgressive.

The university has two scholarships specifically related to LGBTQ studies and LGBTQ issues: The Rodler/Wood Scholarship (http://wmst.umd.edu/academics/undergraduate-studies/awards-and-scholarships/rodlerwood-scholarship/) is awarded annually based on one or more of the following criteria: demonstrated financial need, hardship based on sexual orientation, academic interest in LGBT Studies, and extracurricular activities on behalf of LGBT issues. The Novak Family TerpStart Endowed Scholarship (https://wgss.umd.edu/academic-programs/undergraduate/scholarships-awards/novak-family-terpstart/) is awarded to an undergraduate student participating in the department's LGBTQ Studies Program.

For additional information, or to initiate the process of declaring the certificate or minor, please contact the undergraduate advisor at wgss@umd.edu or 301-405-6827.

# LGBTQ Studies Certificate

**College of Arts and Humanities**
2101 Woods Hall
Phone: 301-405-6877
wgss@umd.edu
http://wgss.umd.edu

**Department Chair:** Neda Atanasoski, Ph.D

See Women, Gender, and Sexuality Studies Department (p. ) for faculty roster.

The LGBTQ Studies Certificate Program provides students an opportunity for interdisciplinary study of the lives, experiences, identities, and representations of LGBTQ people. Any student in good standing may enroll in the certificate program by declaring their intention to the Harriett Tubman Department of Women, Gender, and Sexuality Studies.

The LGBTQ Studies Certificate is a 21 credit program. For additional information, or to initiate the process of declaring the certificate, please contact the undergraduate advisor at wgss@umd.edu or 301-405-6827. Students are advised to meet with the department advisor to add the certificate by the time they have reached 75 credits, if not before.

## Program Learning Outcomes

1. Students will demonstrate familiarity with major concepts and vocabulary in the field of LGBTQ Studies.
2. Students will understand and be able to critique key developments in LGBTQ thought as strategies of social change and production of knowledge about gender and sexuality in the context of social relations of difference and power.
3. Students will demonstrate critical reasoning and research skills in the field of LGBTQ Studies.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Required Core Curriculum** | | |
| Foundation Course | | 3 |
| LGBT200 | Introduction to Lesbian, Gay, Bisexual, and Transgender Studies | |
| Capstone Course (select one of the following) | | 3 |
| LGBT386 | Lesbian, Gay, Bisexual, and Transgender Community Organization Internship | |
| LGBT488 | Seminar in Lesbian, Gay, Bisexual, and Transgender Studies | |
| Elective Courses [1] | | 15 |
| **Total Credits** | | **21** |

[1] **Elective Courses:** Students must take five elective courses, at least three of which must be upper division. Electives must cover at least three of the following six thematic areas. Courses may be designated by the faculty who are teaching them as covering more than one of these areas. Students may also request that courses be counted as covering one or more areas.

1. Arts, Technology and Cultural Production
2. Transnational Politics and Perspectives
3. Institutions, Politics, and/or social Movements
4. Race, Ethnicity, and Class
5. Transgender Studies
6. Queer and/or Feminist Theory

Consult the department for eligible courses in each area.

Other Program Requirements:

- No course earned with a grade below "C-" will count toward the certificate in LGBTQ Studies.
- An overall GPA of 2.0 in the certificate is required for graduation.
- Students may use a maximum of nine credits (or three courses) to satisfy the requirements of both their major and the certificate in LGBTQ Studies.
- No more than nine of the required credits may be taken at an institution other than the University of Maryland, College Park.

# LGBTQ Studies Minor

**College of Arts and Humanities**
2101 Woods Hall
Phone: 301-405-6877
wgss@umd.edu
http://wgss.umd.edu

**Department Chair:** Neda Atanasoski, Ph.D.

See Women, Gender, and Sexuality Studies Department (p. ) for faculty roster.

The LGBTQ minor in the Department of Women, Gender, and Sexuality Studies is a 15 credit program which provides students an opportunity for interdisciplinary study of the lives, experiences, identities, and representations of LGBT people. This course of study provides solid grounding in the major concepts and methods that define studies of sex, gender, and gender identity today. Any student in good standing in the university may enroll in the LGBTQ Studies minor. In consultation with the Department of Women, Gender, and Sexuality Studies academic advisor, students will design a minor program that complements their major field of study.

For additional information, or to initiate the process of declaring the minor, please contact the undergraduate advisor at wgss@umd.edu or 301-405-6827. Students are advised to meet with the department advisor by the time they have reached 90 credits, if not before.

## Program Learning Outcomes

1. Students will demonstrate familiarity with major concepts and vocabulary in the field of LGBTQ Studies.
2. Students will understand and be able to critique key developments in LGBTQ thought as strategies of social change and production of knowledge about gender and sexuality in the context of social relations of difference and power.
3. Students will demonstrate critical reasoning and research skills in the field of LGBTQ Studies.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Required Core Curriculum** | | |
| Foundation Course | | 3 |
| LGBT200 | Introduction to Lesbian, Gay, Bisexual, and Transgender Studies | |
| Capstone Course (select one of the following) | | 3 |
| LGBT386 | Lesbian, Gay, Bisexual, and Transgender Community Organization Internship | |
| LGBT488 | Seminar in Lesbian, Gay, Bisexual, and Transgender Studies | |
| Elective Courses [1] | | 9 |
| **Total Credits** | | **15** |

[1] **Elective Courses**: Students must take three electives, at least two of which must be upper division. Electives must cover at least two of the following six thematic areas. Courses may be designated by the faculty who are teaching them as covering more than one of these areas. Students may also request that courses be counted as covering one or more areas.

1. Arts, Technology and Cultural Production
2. Transnational Politics and Perspectives
3. Institutions, Politics,and/or Social Movements
4. Race, Ethnicity, and Class
5. Transgender Studies
6. Queer and/or Feminist Theory

Consult the department for eligible courses in each area.

Other Program Requirements:

- No course earned with a grade below "C-" will count toward the minor in LGBTQ Studies.
- An overall GPA of 2.0 in the minor is required for graduation.
- Students may use a maximum of six credits (or two courses) to satisfy the requirements of both their major and the minor in LGBTQ Studies. However, courses taken to complete the minor in LGBTQ Studies may not be used to satisfy the requirements of another minor.
- No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park. However, at least six 3xx or 4xx-level credits applied to the minor must be taken at this university.

# Women, Gender, and Sexuality Studies Certificate

**College of Arts and Humanities**
2101 Woods Hall
Phone: 301-405-6827
wgss@umd.edu
http://wgss.umd.edu

**Department Chair:** Neda Atanasoski, Ph.D.

See Women, Gender, and Sexuality Studies Department (p. ) for faculty roster.

The Women, Gender and Sexuality Studies Certificate Program offers a flexible, intersectional and interdisciplinary curriculum that centers the study of structural inequity, as grounded in hierarchies of gender, race, sexuality, ethnicity, nationality, and ability. The interdisciplinary nature of the certificate makes it an excellent supplement to a wide cross-section of majors at the University of Maryland. WGSS Certificate students use their certificate to pursue careers in a wide range of areas, including non-profit management, social justice advocacy, law, health-related fields, student affairs, and government and public policy. Any student in good standing may enroll in the certificate program by declaring their intention to the Harriet Tubman Department of Women, Gender, and Sexuality Studies.

Students will design their programs in consultation with the Women, Gender, and Sexuality Studies advisor. For additional information, or to initiate the process of declaring the certificate, please contact the undergraduate advisor at wgss@umd.edu or 301-405-6827. Students are advised to meet with the department advisor to add the certificate by the time they have reached 75 credits, if not before.

## REQUIREMENTS

To qualify for a certificate in Women, Gender, and Sexuality Studies, a student will be required to earn 21 credits in Women, Gender, and Sexuality Studies courses, twelve of which must be at the 3xx/4xx level. No more than nine credits that are applied toward a major may be included in the certificate program. No more than nine credit hours may be taken at institutions other than the University of Maryland. Each student must obtain a grade of "C-" or better in each course that is to be counted toward the certificate. An overall GPA of 2.0 in the certificate is required for graduation. A list of courses offered can be found here: https://wgss.umd.edu/academic-programs/courses (https://wgss.umd.edu/academic-programs/courses/). Of the 21 credits, courses must be distributed as follows:

| Course | Title | Credits |
|---|---|---|
| **Foundation Courses:** | | |
| One of the following courses: | | 3 |
| LGBT200 | Introduction to Lesbian, Gay, Bisexual, and Transgender Studies | |
| WGSS200 | Introduction to WGSS: Gender, Power, and Society | |
| WGSS250 | Introduction to WGSS: Art and Culture | |
| WGSS263 | Introduction to Black Women's Studies | |
| WGSS290 | Bodies in Contention | |
| WGSS302 | Feminist, Critical Race, and Queer Theories | 3 |
| **Capstone Course** | | **3** |
| WGSS488 | Senior Seminar | |
| LGBT488 | Seminar in Lesbian, Gay, Bisexual, and Transgender Studies | |
| Any 400-level course from thematic concentrations | | |
| **Thematic Concentration** [1] | | **12** |
| **Total Credits** | | **21** |

[1] Thematic concentrations:

- Social Justice
- Transnational Politics and Perspectives
- Race, Ethnicity and Class
- Bodies, Genders and Sexualities
- Arts, Technologies, and Cultural Production
- Lesbian, Gay, Bisexual, Transgender and Queer Studies
- Student Designed

Consult the department for eligible courses in each area.

# Women, Gender, and Sexuality Studies Major

**Department Chair:** Neda Atanasoski, Ph.D.

Rooted in the academic and political histories of Women's Studies, the Women, Gender, and Sexuality Studies B.A. centers the study of structural inequity, as grounded in intersecting hierarchies of gender, race, sexuality, ethnicity, nationality, and ability. The WGSS major provides students with an opportunity to develop a scholarly and applied understanding of social justice, honing a radical vision for political, economic, and

societal freedom. Students will take courses informed by intersectional scholarship and methodologies from the arts and humanities, social sciences, public health, psychology, government, and public policy, among others. Women, Gender and Sexuality Studies offers students a flexible program of study in which there is focused attention on building students' analysis and critique of the most pressing issues of the day, such as anti-black racism, reproductive justice, discriminatory practices against lesbian, gay, bisexual and transgender people, xenophobia and antisemitism, silencing of indigenous communities and structural exclusion by practices of ageism and ableism.

Our introductory courses, which offer the option of focusing on social sciences or artistic methods, equip students with the tools and vocabulary to both analyze and respond creatively to social problems. Upper-division courses, which are usually run as small-size seminars, focus on building students' research skills for pursuing topics of special interest. The final year of the B.A. degree specifically prepares students for jobs through guided internship courses that involve regular interaction with both a worksite supervisor and an assigned faculty member. Senior-level seminars focus on the development of skills and knowledge that can inform careers in a wide range of areas, including non-profit management, social justice advocacy, digital and media expression, law, health-related fields, student affairs, academia, and government and public policy. We seek to shape a new generation of scholars and leaders who, with us, will work to acknowledge, understand, and critically interrogate hierarchies of difference, while imagining more just futures.

Courses offered by this department may be found under the following acronyms: WGSS, LGBT.

# Program Learning Outcomes

Students are expected to fully engage with the curriculum and the opportunities presented for learning and research. Having completed the program, students should have acquired the following knowledge, skills, and practices:

1. An ability to critically analyze issues related to women, race/ethnicity, gender, sexuality, and class
2. A demonstrated engagement with the practices of feminist, critical race, and LGBTQ social action
3. An ability to do independent research using appropriate methods
4. An ability to use effective forms of communication

# REQUIREMENTS

Students will earn a total of 37 credit hours, distributed as indicated below. Drawing from approximately fifty courses, many of which are cross-listed with other academic units, students will have the opportunity to design an emphasis within the major relevant to their special interests. A number of courses may count in more than one category. At least 31 credits must be at or above the 3xx level. No course with a grade less than "C-" may be used to satisfy the major. An overall GPA of 2.0 in the major is required for graduation. Students will design their programs in consultation with a Women, Gender, and Sexuality Studies advisor.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Introductory Courses** | | |
| Select one of the following courses: | | 3 |
| LGBT200 | Introduction to Lesbian, Gay, Bisexual, and Transgender Studies | |
| WGSS200 | Introduction to WGSS: Gender, Power, and Society | |
| WGSS250 | Introduction to WGSS: Art and Culture | |
| WGSS263 | Introduction to Black Women's Studies | |
| WGSS290 | Bodies in Contention | |
| **Foundation Courses** | | |
| WGSS301 | Introduction to Research in Gender, Race, and Queer Studies | 3 |
| WGSS302 | Feminist, Critical Race, and Queer Theories | 3 |
| WGSS319 | Workshops in Gender, Race, and Queer Studies | 3 |
| **Thematic Concentrations** | | |
| Select at least four courses from the following thematic concentrations (see courses below). [1] | | 12 |
| Area 1: Social Justice | | |
| Area 2: Transnational Politics and Perspectives | | |
| Area 3: Race, Ethnicity, and Class | | |
| Area 4: Bodies, Genders, and Sexualities | | |
| Area 5: Arts, Technologies, and Cultural Production | | |
| Area 6: Lesbian, Gay, Bisexual, Transgender and Queer Studies | | |
| Area 7: Gender, Sexuality and Health | | |
| **Capstone** | | |
| WGSS487 | Advanced Research Seminar in Gender, Race, and Queer Studies | 3 |
| Select one of the following courses: | | 3 |
| WGSS489 | Individual Research in Gender, Race and Queer Studies | |
| LGBT488 | Seminar in Lesbian, Gay, Bisexual, and Transgender Studies | |
| WGSS488 | Senior Seminar | |
| WGSS486 | Advanced Feminist, Critical Race, and Queer Theories | |
| **Scholarship in Practice** | | |
| Select one of the following courses: | | 3 |
| WGSS368 | Undergraduate WGSS Internship | |
| WGSS358 | Undergraduate Teaching Assistantship | |
| **Professional Development** | | **1** |
| WGSS497 | Professional Development | |
| **Cognate** | | **3** |
| Three upper level credits in a course outside LGBT/WGSS that provides supporting context for the thematic concentration. [2,3] | | |
| **Total Credits** | | **37** |

1. Nine of the 12 Thematic Concentration credits must be upper level. Six of the 12 credits may overlap with courses fulfilling other major requirements. Regardless of the overlap of courses between the categories of the major, students must complete a minimum of 37 credits in the major.
2. Students with a double major will be considered to have fulfilled their cognate requirement.
3. In fulfilling the above requirements, students must complete nine hours of upper-level credit in courses that provide the following perspectives (three hours each): historical, transnational, cultural production.

## Social Justice

| Course | Title | Credits |
|---|---|---|
| WGSS105 | (Introduction to Disability Studies) | |
| WGSS200 | Introduction to WGSS: Gender, Power, and Society | |
| WGSS205 | (Reproductive Jusitice) | |
| WGSS250 | Introduction to WGSS: Art and Culture | |
| WGSS290 | Bodies in Contention | |
| WGSS291 | Racialized Gender and Rebel Media | |
| WGSS319 | Workshops in Gender, Race, and Queer Studies (319D Disability Justice; 319F Speculating Social Justice; 319P Pleasure, Intimacy, and Violence; 319U Critical University Studies) | |
| LGBT350 | LGBTQ+ Public Speaking and Facilitation | |
| HIST360 | Women and the Civil Rights Movement | |
| WGSS428 | Topics in Women, Gender, and Sexuality Studies (428D Debt Culture) | |
| HIST467 | Women and Reform Movements in the Twentieth-Century United States | |
| WGSS488 | Senior Seminar (488D Capitalism and Disability; 488F Blackness, Gender, and Sexuality: Women Writing Self in the African Diaspora) | |

## Transnational Politics and Perspectives

| Course | Title | Credits |
|---|---|---|
| HIST212 | Women in Western Europe 1750-Present | |
| HIST215 | Women in Western Europe to 1750 | |
| WGSS275 | World Literature by Women | |
| WGSS290 | Bodies in Contention | |
| LGBT291 | | |
| JAPN316 | Women and Japanese Literature: Japanese Literature in Translation | |
| WGSS360 | Caribbean Women | |
| WGSS410 | Women of the African Diaspora | |
| HIST412 | History of Women and Gender in Africa | |
| SPAN412 | Women in the Middle Ages: Myths and Daily Life | |
| SPAN433 | Women and Culture in Colonial Latin America | |
| SPAN471 | United States Latina Fiction | |
| WGSS488 | Senior Seminar (488C South Asian Feminisms; 488F Blackness, Gender, and Sexuality: Women Writing Self in the African Diaspora; 488G Transnational Feminisms) | |
| HIST492/ WGSS456 | Women and Society in the Middle East | |
| HIST495 | Women in Medieval Culture and Society | |

## Race, Ethnicity, and Class

| Course | Title | Credits |
|---|---|---|
| LGBT200 | Introduction to Lesbian, Gay, Bisexual, and Transgender Studies | |
| HIST/ WGSS211 | Women in America Since 1880 | |
| WGSS263 | Introduction to Black Women's Studies | |
| LGBT264 | Quare/Queer Contentions: Exploration of Sexualities in the Black Community | |
| WGSS265 | Constructions of Manhood and Womanhood in the Black Community | |
| WGSS267 | Introduction to Black Women's Cultural Studies | |
| WGSS290 | Bodies in Contention | |
| WGSS291 | Racialized Gender and Rebel Media | |
| WGSS298 | Special Topics in Women, Gender, and Sexuality Studies (298W Monsters and Racism: Black Horror and Speculative Fiction) | |
| WGSS314 | Black Women in United States History | |
| WGSS319 | Workshops in Gender, Race, and Queer Studies (319DC Gender, Drag, and Burlesque; 319E Making Race and Gender in Reality TV; 319P Pleasure, Intimacy, and Violence) | |
| HIST360 | Women and the Civil Rights Movement | |
| WGSS360 | Caribbean Women | |
| WGSS370 | Black Feminist Thought | |
| WGSS410 | Women of the African Diaspora | |
| AAST/ WGSS420 | Asian American Women: The Social Construction of Gender | |
| WGSS428 | Topics in Women, Gender, and Sexuality Studies (428D Debt Culture; 428L 21st Century Black Feminism) | |
| LGBT448 | Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (428D Debt Culture; 428L 21st Century Black Feminism) | |
| LGBT488 | Seminar in Lesbian, Gay, Bisexual, and Transgender Studies (488E Queering Black Femininities) | |
| WGSS488 | Senior Seminar (488F Gender, and Sexuality: Women Writing Self in the African Diaspora) | |
| AASP493 | Feminist and Nationalist Thought in Black Communities | |
| WGSS496 | African-American Women Filmmakers | |
| WGSS498 | Advanced Special Topics in Women, Gender, and Sexuality Studies (WGSS498Z Black Women's Art and Culture) | |

## Bodies, Gender, and Sexualities

| Course | Title | Credits |
|---|---|---|
| WGSS105 | (Introduction to Disability Studies) | |
| LGBT200 | Introduction to Lesbian, Gay, Bisexual, and Transgender Studies | |
| WGSS205 | (Reproductive Justice) | |
| HIST213 | History of Sexuality in America | |
| WGSS265 | Constructions of Manhood and Womanhood in the Black Community | |
| WGSS267 | Introduction to Black Women's Cultural Studies | |
| WGSS290 | Bodies in Contention | |
| WGSS291 | Racialized Gender and Rebel Media | |
| LGBT310 | Transgender Studies | |
| WGSS315 | Intro to Fat Studies: Fatness, Blackness and Their Intersections | |
| WGSS319 | Workshops in Gender, Race, and Queer Studies (WGSS319C Gender, Drag, and Burlesque) | |

| | |
|---|---|
| WGSS319 | Workshops in Gender, Race, and Queer Studies (WGSS319D Disability Justice) |
| WGSS319 | Workshops in Gender, Race, and Queer Studies (WGSS319P Pleasure, Intimacy, and Violence) |
| WGSS428 | Topics in Women, Gender, and Sexuality Studies (WGSS428L 21st Century Black Feminisms) |
| WGSS428 | Topics in Women, Gender, and Sexuality Studies (WGSS428H Cultural History of Drag) |
| LGBT448 | Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (LGBT448L Black Queer Studies) |

## Arts, Technologies, and Cultural Production

| Course | Title | Credits |
|---|---|---|
| FREN241 | Women Writers of French Expression in Translation | |
| WGSS250 | Introduction to WGSS: Art and Culture | |
| ENGL250/ WGSS255 | Reading Women Writing | |
| LGBT265 | LGBTQ+ Literatures and Media | |
| WGSS267 | Introduction to Black Women's Cultural Studies | |
| CMLT/ WGSS275 | World Literature by Women | |
| LGBT291 | | |
| WGSS298W | Monsters and Racism: Black Horror and Speculative Fiction | |
| WGSS319 | Workshops in Gender, Race, and Queer Studies (319C Gender, Drag, and Burlesque; 319E Making Race and Gender in Reality Television; 319F Speculating Social Justice) | |
| LGBT327 | Lesbian, Gay, Bisexual, and Transgender Film and Video | |
| LGBT359 | Special Topics in LGBTQ+ Literatures and Media | |
| ENGL408 | Literature by Women Before 1800 | |
| ENGL/ WGSS448 | Literature by Women of Color | |
| LGBT448 | Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (448L Black Queer Studies) | |
| ENGL458 | Literature by Women After 1800 | |
| SPAN471 | United States Latina Fiction | |
| WGSS488 | Senior Seminar (488A Black Women in the Arts; 488F Blackness, Gender, and Sexuality: Women Writing Self in the African Diaspora) | |
| WGSS496 | African-American Women Filmmakers | |
| WGSS498 | Advanced Special Topics in Women, Gender, and Sexuality Studies (WGSS498Z: Black Women's Art and Culture) | |

## Lesbian, Gay, Bisexual, Transgender and Queer Studies

| Course | Title | Credits |
|---|---|---|
| LGBT200 | Introduction to Lesbian, Gay, Bisexual, and Transgender Studies | |
| LGBT264 | Quare/Queer Contentions: Exploration of Sexualities in the Black Community | |
| LGBT265 | LGBTQ+ Literatures and Media | |
| LGBT291 | | |
| WGSS290 | Bodies in Contention | |
| WGSS291 | Racialized Gender and Rebel Media | |
| LGBT310 | Transgender Studies | |
| LGBT327 | Lesbian, Gay, Bisexual, and Transgender Film and Video | |
| LGBT350 | LGBTQ+ Public Speaking and Facilitation | |
| LGBT359 | Special Topics in LGBTQ+ Literatures and Media | |
| LGBT386 | Lesbian, Gay, Bisexual, and Transgender Community Organization Internship | |
| LGBT448 | Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies | |
| LGBT488 | Seminar in Lesbian, Gay, Bisexual, and Transgender Studies | |

## Gender, Sexuality, and Health

| Course | Title | Credits |
|---|---|---|
| LGBT200 | Introduction to Lesbian, Gay, Bisexual, and Transgender Studies | |
| LGBT310 | Transgender Studies | |
| WGSS105 | (Introduction to Disability Studies) | |
| WGSS205 | (Reproductive Justice) | |
| WGSS230 | Introduction to Humanities, Health, and Medicine | |
| WGSS290 | Bodies in Contention | |
| WGSS315 | Intro to Fat Studies: Fatness, Blackness and Their Intersections | |
| WGSS319 | Workshops in Gender, Race, and Queer Studies (WGSS319D Disability Justice) | |
| WGSS319 | Workshops in Gender, Race, and Queer Studies (WGSS319P Pleasure, Intimacy, and Violence) | |
| WGSS379 | Topics in Women, Gender, and Sexuality Studies (WGSS379D Feminist Disability Studies) | |
| WGSS488 | Senior Seminar (WGSS488C Capitalism and Disability) | |
| WGSS498 | Advanced Special Topics in Women, Gender, and Sexuality Studies (WGSS498B Health Inequality and Social Determinants) | |

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# History

**College of Arts and Humanities**
2115 Francis Scott Key Hall

Phone: 301-405-4265
http://history.umd.edu

As historians, we take pleasure in the difficulty of our profession. Our gaze falls upon the entire sweep of human experience, and our subject, humankind, is the most perplexing of all. Here you can learn about the world: about people and their motivations, about how small events can change so many lives. You can explore the impact of legal policies in early modern China, or the impact of the German autobahn. You can explore the canals and the people of sixteenth century Venice, and nineteenth century disputes about African colonialism. You will learn to find and sort information, to analyze documents, to weigh human motivation, to consider what we know about the worlds of the past and the human place within it. By understanding history you can also understand much more about our present, and will emerge with many relevant skills and ideas that can translate into a variety of careers. In addition to topics listed above, our faculty include specialists in the history of slavery in the U.S., environmental history and modern American filmmaking. We study and teach about the American Revolution, early modern medicine, women's history, American legal history, Medieval Iberia, the Atlantic world, the holocaust, Habsburg Vienna, Jewish history, early and medieval Islam, Sufism, the Ottomans, the Modern Middle East and North Africa, Central Asia and Soviet Russia. You can study Ukraine and Poland in the 20th century, the early Spanish empire in Latin America, struggles over identity in the nineteenth century Caribbean, and the rise and fall of ancient Rome. Through it all we center the voices of people and the sources that allow us to know and understand the worlds in which they lived.

# PROGRAMS

## Majors

- Central European, Russian and Eurasian Studies Major (p. 187)
- History Major (p. 189)

## Minors

- History Minor (p. 190)
- Middle East Studies Minor (p. 191)

## Certificate

- East Asian Studies Certificate (HIST) (p. 188)

# ADVISING

Academic advising is available daily on a drop-in basis in the History Undergraduate Advising Office, 2131C Key Hall. Check the department website for current schedule or contact historyadvising@umd.edu for more information.

To review the academic plan for this major, go to http://arhu.umd.edu/undergraduate/advising/academicplans/.

# OPPORTUNITIES

## Internships

Juniors and seniors may take up to 6 hours of credit in historically-related internships, of which three hours may be counted toward the 39 hours in history required for graduation. All internships must have a direct relationship to the work of understanding, interpreting, presenting or preserving history and/or historical evidence. Students must have both a site supervisor at the place of the internship and a history faculty mentor for their internship project. Student internships must be approved by the History Department internship coordinator. Internships are generally only open to students who have an overall GPA of 2.5 or better.

## Honors Program

The purpose of the Honors Program in History is to allow promising undergraduates to develop historical and historiographical skills, in an atmosphere that guarantees personal attention and that encourages hard work and excellence. The program is a four-semester sequence, the culmination of which is a senior thesis--a major research paper written under the close supervision of a faculty mentor. There are two phases to the program: in the junior year, students are introduced to the problems of history-writing at a sophisticated level, via two seminars on problems of historiography; in the senior year they complete two supervised courses in the writing of the senior thesis.

## Student Societies and Professional Organizations

History majors and other interested students are encouraged to join the History Undergraduate Association (HUA), which sponsors events such as an annual Film Festival and special seminars and activities. History majors edit and publish a web-based journal, *Janus: The University of Maryland Undergraduate History Journal*, which features student writing relevant to history. *Janus* also sponsors an annual conference where undergraduates present their research and are awarded prizes. The department also hosts the Beta-Omega chapter of Phi Alpha Theta, the national history honors society. Information on these organizations can be obtained from the History Undergraduate Office, 2131 Francis Scott Key Hall.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# Central European, Russian and Eurasian Studies Major

> ***Note:*** *The major in Central European, Russian and Eurasian Studies is currently under review and is not admitting students. For further information, please contact the Program Director, Dr. Mikhail Dolbilov at* dolbilov@umd.edu.

**College of Arts and Humanities**
2115 Francis Scott Key Hall
Phone: 301-405-4284
dolbilov@umd.edu

**Program Director:** Mikhail Dolbilov, Ph.D.

The CERES program fosters in-depth knowledge of the region stretching from Prague in the West to Vladivostok in the East. This includes three main areas:  Central and Eastern Europe, Russia, and Eurasia (the newly independent states of the former Soviet Union). Our majors prepare for careers and graduate programs in which an in-depth knowledge of Russia, Central Europe, and Eurasia can be applied with great benefit, such as journalism, government service, diplomacy, business, a variety

of professional schools, and M.A. and Ph.D. programs in the humanities and social sciences. Our majors take courses in a range of different departments, gaining a firm grounding in the languages, literatures, history, politics, and economics of their area of study. They have the flexibility to do coursework in other fields related to the area as well. Students learn to examine our area of study with the tools of many scholarly fields. Courses that count toward this major may be found under the following acronyms: ARTH, ECON, GEOG, GERM, GVPT, HIST, PHIL, RUSS, SOCY, THET.

## Admission to the Major

Admission is open to all interested students but should be approved in a meeting with the Director.

## Placement in Courses

Placement in language courses is determined by the advisor for a given language. Before you enroll in a Russian or German language class, you must take the online World Language Placement: http://arhu.umd.edu/academics/world-language-placement/. However, final placement into the correct level will be determined by the advisor for the language you wish to study.

## Program Objectives

The program strives to promote interdisciplinary and comparative approaches to studying the languages, history and culture across the vast region of the former Soviet Union and Eastern and Central Europe.

## Program Learning Outcomes

Having completed the multi-disciplinary degree program, students are expected to attain the following learning outcomes:

1. Students will demonstrate the ability to communicate effectively in writing in either Russian, German, or a Central/East European language (including Czech, Polish, Hungarian, Serbian and Croatian, Bulgarian, and Romanian); or in a Eurasian language (i.e., a language from a country formerly part of the Soviet Union).
2. Students will demonstrate the ability to conduct research using primary and secondary sources including archival, print and non-print, and web-based texts.
3. Students will demonstrate the ability to apply knowledge and skills from various relevant disciplines, such as history, literary scholarship, sociology, religion studies, and political science, to understanding the area's historical and contemporary complexity.

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

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- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# ADVISING

Course selection and progress toward programmatic requirements are to be discussed individually through meetings with the CERES director.

# OPPORTUNITIES

## Undergraduate Research Experiences

Students are encouraged to pursue research, internship and study abroad experiences. Such opportunities should be discussed individually with the director.

## Internships

Students are encouraged to seek off-campus internships that may be available in the greater DC-Baltimore area. Earning academic credit for such experiences should be discussed individually with the director.

## Student Societies and Professional Organizations

CERES majors are eligible for nomination to national honor societies related to their studies, including Dobro Slovo, the National Slavic Honor Society.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers a variety of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# East Asian Studies Certificate (HIST)

**College of Arts and Humanities**
2106C Jimenez Hall
Phone: 301-405-2855
mlzhou@umd.edu
http://ceas.umd.edu/#certificate/

**Program Director:** Minglang Zhou, Ph.D.

The Undergraduate Certificate in East Asian Studies is a 24-credit course of instruction designed to provide specialized knowledge of the cultures, histories, and contemporary concerns of the peoples of China, Japan, and Korea. It will complement and enrich a student's major. The curriculum focuses on language instruction, civilization courses, and electives in several departments and programs of the university. It is designed specifically for students who wish to expand their knowledge of East Asia and demonstrate to prospective employers, the public, and graduate and professional schools a special competence and set of skills in East Asian affairs.

Upon satisfactory completion of the courses, with a grade of "C-" or better in each course, and recommendation by the Coordinator of the Certificate Program, a certificate will be awarded. Beginning with Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.0) cumulative grade point average across all courses used to satisfy undergraduate certificate requirements. A notation of the award of the certificate will be included on the student's transcript. The student must have a bachelor's degree awarded by Maryland (must be College Park campus) previous to or simultaneously with an award of the certificate.

## Core Values of the Program

- Vision: See the U.S. and East Asia as parts of one globalized world with cultural varieties.
- Knowledge: Acquire language skills, spatial and chronological thinking skills, and creative prowess through interdisciplinary study.
- Integrity: Adhere to the University's Code of Academic Integrity and professional ethics.

The Certificate will equip students to develop successful careers through teaching excellence and study abroad programs.

Interested students should contact the Coordinator of the Certificate Program, Dr. Minglang Zhou, Department of East Asian Languages and Cultures, 2106C Jimenez Hall, mlzhou@umd.edu (website at http://ceas.umd.edu/#certificate/).

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| HIST284 | East Asian Civilization I | 3 |
| HIST285 | East Asian Civilization II | 3 |
| Six semester hours of introduction to one of the following East Asian languages: [1] | | 6 |
| CHINESE: | CHIN101 | |
| JAPANESE: | JAPN101 | |
| KOREAN: | Elementary Korean (KORA101 & KORA102) | |
| Complete at least 12 hours of electives selected from four regular approved courses on East Asia in such disciplines as: | | 12 |
| Art History | | |
| Business | | |
| Ethnomusicology | | |
| Government and Politics | | |
| History | | |
| Language, Linguistics, and Literature | | |
| Music | | |
| Plant Science and Landscape Architecture | | |
| Sociology | | |
| Women's Studies | | |
| **Total Credits** | | **24** |

[1] Students with language competence equivalent to these language courses are exempted from the language requirement; such students are required to complete an additional six hours of electives in East Asian courses to fulfill the 24-credit requirement for the certificate.

## Additional Requirements

- An overall GPA of 2.0 in the certificate is required for graduation.
- Nine of the 12 hours of electives must be upper division (3xx-4xx level courses).
- A maximum of three credit hours of special topics courses on East Asia will be allowed with the approval of the certificate coordinator.
- No more than nine credits from any one department or from the student's major may be applied toward the certificate.
- No more than nine credits of the courses applied toward the certificate may be transferred from other institutions.
- Students are asked to work with the coordinator in ensuring that the electives maintain an intercollegiate and interdisciplinary focus (at least three disciplines are recommended), as well as a regional distribution to reflect the countries of East Asia. Ideally, students will select electives that, taken together, include China, Japan, and Korea.

# History Major

**Notice of Addendum:** Program description and learning outcomes were updated effective Spring 2025 and have been published on ADDENDA TO THIS CATALOG (p. 1112).

**Director of Undergraduate Studies:** Holly Brewer, Ph.D.

Historical study offers preparation for informed and empathetic citizenship in an increasingly complex and interdependent world. A major in History requires students to engage in analytical reading, critical thinking, and persuasive writing. The Department of History seeks to broaden the student's cultural background through the study of history and to provide preparation for those interested in publishing, teaching, museum work, law, journalism, civil service, military, archival and library work, diplomacy, business school, and graduate study.

The History major offers a broad variety of geographic and thematic fields of specialization (see details below). Undergraduate advisors assist all majors in planning a curriculum to meet their personal interests. Students are strongly encouraged to take advantage of study abroad programs and to acquire and/or cultivate the language skills relevant to their field of specialization. We expect students to meet with a history undergraduate advisor once every semester.

Courses offered by the Department of History may be found under the course code HIST.

## Program Learning Outcomes

1. Organization and Structure: Students will demonstrate their ability to explain essay structure and thesis in introduction and summarize their findings in the conclusion
2. Organization and Structure: Students will demonstrate their ability to organize essay logically
3. Thesis and Argumentation: Students will demonstrate their ability to construct a thesis
4. Thesis and Argumentation: Students will demonstrate the ability to support an argument with evidence
5. Research and Evidence: Students will demonstrate their ability to rely on primary and secondary sources in their essays/papers
6. Research and Evidence: Students will demonstrate proper research skills
7. Referencing and Formatting: Students will demonstrate their ability to properly cite sources throughout the paper/essay
8. Referencing and Formatting: Students will demonstrate mastery of the relevant citation formats
9. Diversity, Equity and Inclusion: Students will be able to demonstrate a historical understanding of how societies have created and maintained inequalities of power based on such perceived differences as race, class, gender, or sexuality.
10. Diversity, Equity and Inclusion: Students will be able to identify how aspects of today's society have been shaped by past inequalities.

11. Diversity, Equity and Inclusion: Students will demonstrate an understanding of how subordinated peoples have challenged, shaped, and sometimes transformed unequal relations.
12. Diversity, Equity and Inclusion: Students will be able to articulate how structural factors have contributed to knowledge production, and singularly historical knowledge, including the preservation of documents and/or gaps of sources.

# REQUIREMENTS

**Notice of Addendum:** requirements for this program were updated effective Spring 2025 and have been published on ADDENDA TO THIS CATALOG (p. 1112).

Requirements for the History major are 39 credits of history course work distributed as follows: 12 credits in 1xx or 2xx-level introductory courses and including HIST208 (https://academiccatalog.umd.edu/search/?P=HIST208); 15 credits in one major field of specialization (see below); nine credits of history in at least two major areas other than the field of specialization; HIST408 (https://academiccatalog.umd.edu/search/?P=HIST408). All courses for the major must be completed with a minimum grade of "C-", and 21 credits of the 39 total credits must be at the junior-senior (3xx or 4xx) level. An overall GPA of 2.0 in the major is required for graduation.

Students must take courses in at least three geographical regions. At least two courses must be taken in two or more of the following fields: Africa and the African Diaspora; Latin America and the Caribbean; North Africa, Middle East, and Central Asia; South and East Asia; and select Global Interactions and Exchanges (GIE) courses approved by the Undergraduate Committee. The list may be obtained from the History Undergraduate Advisor's Office.

Students must take at least one course in the pre-1750 period.

No more than 6 credits can be fulfilled by AP and IB credits.

History majors can petition to include up to two courses taught outside the Department toward the fulfillment of the major, with the approval of the Undergraduate Committee. Courses taught outside of the History Department may fulfill geographic and/or thematic requirements. They may not be used to fulfill the departmental capstone seminars.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Introductory Courses** | | |
| HIST208 | Historical Research and Methods Seminar | 3 |
| Three courses at the 1xx or 2xx-level [1] | | 9 |
| **Major Field of Specialization** | | |
| Select a field of specialization from the following: | | 15 |
| Geographic | | |
| Thematic | | |
| Select nine credits of History in at least two fields outside the Field of Specialization [2] | | 9 |
| **Capstone** | | |
| HIST408 | Senior Seminar [3] | 3 |
| **Total Credits** | | **39** |

[1] In considering courses that will fulfill this requirement, students are encouraged to:

- select at least two courses in a sequence
- select at least one course before 1750 and one course after 1750
- sample both regional and topical course offerings. Students will normally take one or more introductory courses within their major field of specialization

[2]
1. Students are encouraged to select mainly 3xx or 4xx-level courses to meet the minimum requirement of 21 credits at the junior-senior (3xx or 4xx) level.
2. Students are encouraged to consider regional diversity.

[3] Should be taken in the senior year and may be inside or outside the field of specialization. May be substituted by HIST396 (Honors Colloquium II).

## Major Fields of Specialization

Students may choose a field of specialization that is either geographic or thematic:

- ***Geographic:*** Africa and the African Diaspora; Europe, Britain, and Russia; Global Interaction and Exchange; Latin America and the Caribbean; North Africa, Middle East, and Central Asia; South and East Asia; United States
- ***Thematic:*** Cultural and Intellectual History; Economies, Labor, and Capitalism; Empires and Colonialism; Social Change and Social Movements; Politics, Law, and Government; Race and Ethnicity; Religion and Society; Science, Technology, Medicine, and the Environment; War, Peace, and Society; Women, Gender, and Sexuality; Individualized Pathway

## Other Requirements for the Major

HIST208 (https://academiccatalog.umd.edu/search/?P=HIST208) is a prerequisite for HIST408 (https://academiccatalog.umd.edu/search/?P=HIST408).

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# History Minor

**History (HIST)**
2115 Francis Scott Key Hall
Phone: 301-405-4265
http://history.umd.edu/academics/undergraduate/history-minor/

**Director of Undergraduate Studies:** Holly Brewer, Ph.D.

The History Minor is designed to introduce students to the broad field of historical study, both by deepening their knowledge and understanding of the past and by developing their ability to do critical, historically-minded analysis. In working with both primary and secondary texts, students will hone their skills in research methods, critical thinking, and expository/

analytical writing. The requirement that courses are distributed across geographic fields and chronological periods ensures that students consider the variety and range of historical experiences. History courses must be completed with a grade of C- or better to count toward the minor. Additionally, a minimum GPA of 2.0 is required across all courses counted toward the minor.

To make an appointment to explore or declare a minor, go to http://arhu.umd.edu/academics/undergraduate-studies/minors/.

## REQUIREMENTS

Participating students must complete 18 credits (6 courses) in History.

- The courses must be distributed in at least 2 geographic fields (Asia, Europe, United States, Middle East, etc.).
- The courses must include at least one course in each of two chronological periods (pre-1750/post-1750).
- A minimum of 9 credits (3 courses) must be taken at the 3xx or 4xx-level.
- No more than 3 credits (1 course) may be taken at the 1xx-level.
- No more than 3 credits (1 course) may be fulfilled by AP, IB, or transfer credit.
- A student may use a maximum of 6 credits (2 courses) to satisfy requirements for both a major and a minor. Courses completed for one minor may not be used to satisfy the requirements for another minor.
- Any student is eligible to pursue the minor, with the exception of a student majoring in History.

# Middle East Studies Minor

**History (HIST)**
2115 Francis Scott Key Hall
Phone: 301-405-4265
http://history.umd.edu/academics/undergraduate/middle-east-minor/

**Director:** Shay Hazkani, Ph.D.
Phone: 301-405-3693
hazkani@umd.edu

**Advisor:**
3107 Taliaferro Hall (https://maps.umd.edu/map/?&feature=building&name=043&basemap=detailed)
Phone: 301-405-4306
mideaststudies@umd.edu

The Middle East Studies Minor (MESM) introduces students to the history, culture, and politics of the Middle East since the emergence of Islam. MESM balances coursework in the contemporary period with exposure to the pre-twentieth-century political, intellectual, and religious experience of the region, its ethnic and religious make-up, and the rich culture that these together engendered.

To make an appointment to explore or declare a minor, go to http://arhu.umd.edu/academics/undergraduate-studies/minors/.

## REQUIREMENTS

The Minor in Middle Eastern Studies requires 15-18 credits (5 courses; some language courses carry more than 3 credit hours per course). Coursework must be distributed to meet the overlapping requirements below. (For example, HIST120: Islamic Civilization can be used to meet both the pre-modern requirement and the Arab world requirement, but does not count doubly in terms of credit.)

| Course | Title | Credits |
|---|---|---|
| **Area Distribution** | | |
| Select at least one course in each of two of the following Area categories: [1] | | 6 |
| | The Arab world | |
| | Iran and the Persian/Iranian world | |
| | (Middle Eastern) Jewish and Israel | |
| | Turkish and Ottoman | |
| | Middle Eastern Diasporas and All Middle East | |
| **Pre-Modern** | | |
| Select at least two courses that focus on the pre-modern period (the 7th century through the 19th century) [2] | | 6 |
| **Electives** | | |
| Select one course from the list of approved Middle East Studies courses [3] | | 3 |
| **Total Credits** | | **15** |

1. Other areas of concentration may be considered and require the director's approval.
2. Students may fulfill this requirement through their area distribution or elective courses.
3. A language course of 3 or more credits may be used to satisfy this requirement. Advanced Arabic, Persian, Hebrew, or Turkish language courses that are content courses rather than grammar-based can be used for the Elective category or count toward Area Distribution and/or Pre-Modern, depending on subject matter.

## Additional Requirements

- A minimum of 3 courses (9 credits) must be at the upper level (3xx- or 4xx-level).
- All credits must be earned with a grade of "C-" or above (no Pass/Fail option).
- An overall GPA of 2.0 in the minor is required for graduation.
- A list of qualifying courses in each category is available from the academic advisor of the minor and on MESM's webpage.
- Only one 1xx or 2xx-level or grammar based course in Arabic, Hebrew, Persian, or Turkish may be credited toward the Minor.
- At least six credits of 3xx or 4xx-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- A maximum of two courses can count towards both the major and the minor.
- Courses cannot count towards multiple minors.

# Jewish Studies

**College of Arts and Humanities**
0124 Taliaferro Hall
Phone: 301-405-4975
jwst-contact@umd.edu
http://jewishstudies.umd.edu

The Meyerhoff Center for Jewish Studies offers majors, minors, and extensive coursework in the history, literature, and culture of the Jewish people, along with courses of study in related fields including Israel Studies, Hebrew, and Religious Studies. Students benefit from small class size and excellent faculty-student ratios, with opportunities for independent research projects and high-level academic work.

Current degree programs include:

- Major in Jewish Studies
- Major in Religions of the Ancient Middle East
- Minor in Jewish Studies
- Minor in Israel Studies
- Minor in Religious Studies
- Minor in Hebrew Studies (administered by the School of Languages, Literatures, and Cultures)

# PROGRAMS

## Majors

- Jewish Studies Major (p. 193)
- Religions of the Ancient Middle East Major (p. 197)

## Minors

- Hebrew Studies Minor (JWST) (p. 195)
- Israel Studies Minor (p. 196)
- Jewish Studies Minor (p. 196)
- Religious Studies Minor (p. 198)

# ADVISING

Majors in Jewish Studies will meet with an advisor for mandatory advising every semester before registering for the next semester's classes. Please contact the Jewish Studies advisor at jwst-advise@umd.edu to arrange meetings.

Please note that Jewish Studies majors must also meet with a College of Arts and Humanities advisor.

- During their first semester
- When they complete 45-55 credits
- When they complete 86-100 credits

Students who wish to minor in Jewish Studies must meet with the advisor at least once, mainly to declare the minor.

## What to Expect from Advising

During advising meetings, an advisor will chart the student's progress through the major or minor. The advisor will ask guiding questions to identify the courses the student is currently taking, intends to take, or wants to learn more about. In the meeting, the student will also have an opportunity to learn about study abroad and internships and to talk more generally about their academic and career plans.

The advisor will make notes and go through the Major or Minor Advising Form to ensure that the student understands the major's or minor's requirements, what courses to take, and when to take them. Every student will get a copy of the Major or Minor Advising Form at the end of each meeting, to retain for their own records.

Note that students who have not yet declared Jewish Studies as their major must meet with the Jewish Studies advisor and then meet with an ARHU advisor. During this first meeting with the Jewish Studies advisor, the student will learn about the Four-Year Plan, which is a schedule of classes developed by ARHU and Jewish Studies for the typical Jewish Studies major to follow. It outlines which courses should be taken during which semesters.

To review the academic plan for this major, go to http://arhu.umd.edu/academics/advising/academic-plans/.

## What to Bring to an Advising Meeting

When students come to a meeting with the Jewish Studies advisor, they should bring a list of courses they are thinking about taking, as well as a list of any requirements they still need to fulfill for another major or minor.

Other documents, such as the requirements for another major or minor, descriptions of courses taken abroad, and previous Major or Minor Advising Forms, are also helpful to bring.

# OPPORTUNITIES

## Honors Program

The Honors Program in Jewish Studies is designed to encourage Jewish Studies majors with excellent grades and strong academic interests to pursue an individual research project of their own design, in consultation with and under the direction of a faculty advisor. The Program consists of twelve credits taken in a student's Junior and Senior years, culminating in the writing of an honors thesis. Students who complete the Honors Program are deemed to have completed the research seminar requirement for the major, typically completed through JWST409.

*Junior Year:* Students apply for admission to the Honors Program in the Fall of their Junior year, and, upon admission, enroll in the Honors Seminar (JWST408) (3 credits) in the Spring of their Junior year. During this time students are expected to develop a general research plan to be approved by the prospective thesis advisor. Thesis advisors will generally belong to the regular or affiliate Jewish Studies faculty. Other faculty may serve as thesis advisor with the written permission of the Director of Undergraduate Studies.

*Senior Year:* In the Fall of their Senior year students select an upper-level course (3 credits) closely related to their research agenda in consultation with the advisor. This may include a regularly offered undergraduate course or an independent study, in which case students are encouraged to apply for an Honors Option for that particular course. In addition, students may request permission to enroll in a graduate-level course to complete this part of their requirement. Students who enter the Honors Program with a clearly defined research interest may complete this requirement in their Junior year.

In addition, students take 6 credits of JWST418: Honors Thesis Research, under the direction of their thesis advisor. Typically these will be divided between the fall and spring semesters. Students are expected to work out with their advisors clear goals that contribute to the thesis as a whole for each semester of thesis research, and will be graded each semester on the basis of having met those goals. In the second semester, the principal goal will be the completed thesis.

# Student Societies and Professional Organizations

## Tzabim (Turtles) –The Jewish Studies Student Organization

The goal of the Jewish Studies Student Organization (Tzabim) is to provide non-curricular support for Jewish Studies majors and minors. Such support includes career guidance, cohort development, networking activities, social events, and other programs designed by the UJSO's members. Led by members, Tzabim responds to students' needs that extend beyond the curricula of the Jewish Studies Program.

All Jewish Studies majors and minors, as well as other students interested in Jewish Studies, are encouraged to attend meetings and get involved.

# Scholarships and Financial Assistance

The Joseph and Rebecca Meyerhoff Center and Program for Jewish Studies is pleased to offer scholarships and awards in a variety of areas of study. These include:

- Merit scholarships for majors and minors in their first year in JWST and majors in their third year in the program.
- Scholarships for study abroad and Hebrew-language study.
- The Harlan and Sally Weisman Scholarship for STEM and Jewish Studies.
- The Charlotte Brozer Shapiro paper prize for work at the intersection of Women Studies and Jewish Studies.

Applications for scholarships are accepted once in the fall and once in the spring. Specific deadlines, as well as the application form, can be found at http://jewishstudies.umd.edu/academic-programs/undergraduate/scholarships/. For more information, please call the Center at 301-405-4975.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# Academic Programs and Departmental Facilities

## Study Abroad

The Jewish Studies program encourages students to study internationally. In addition to programs run by the university, students study at academic programs in Israel, Europe, and elsewhere. In particular, majors studying in Israel gain the opportunity to improve their Hebrew language skills by taking ulpan, the intensive course in Hebrew offered at those universities, and by practicing their Hebrew with Israelis. In addition, students can take courses in Israeli society and politics, Middle East Studies, and other courses not usually offered at College Park. Scholarship funds are available to majors and non-majors. Please see the section on "Scholarships and Financial Assistance" for more information.

## The Library

The Jewish Studies program has a large and growing Judaica collection at the University of Maryland Libraries that aims to become a major resource and repository for the entire area. The collection includes materials in Jewish history, Hebrew and Yiddish literature, the Bible, Talmud, medieval philosophy, Jewish women, theater, the Holocaust, and modern Israel. In addition to scholarly books and periodicals written in the English, German, Hebrew, Yiddish, Ladino, Arabic, French, Italian, and Slavic languages, the collection includes rare books, musical scores, video and audio recordings, facsimile copies of historical documents, and manuscripts. Students may work with Dr. Yelena Luckert, the Judaica Librarian, on their projects and assignments.

## Israel Studies

The Joseph and Alma Gildenhorn Institute for Israel Studies offers a wide array of lectures, programs, courses, and study abroad opportunities, as well as an academic minor. Jewish Studies majors and minors, as well as other students in the university, can benefit from these programs.

## Religious Studies

The minor in Religious Studies and the major in Religions of the Ancient Middle East provide students with opportunities to learn about religion in cross-cultural and trans-historical perspectives. Each program includes a core course that introduces students to the study of religion, including relevant discussions of sacred texts, traditions, practices, philosophies, and material culture. Students explore a variety of approaches to the study of religion, both in theory and in applied consideration of specific examples. Religious Studies courses are offered across campus, not only under the RELS designation, but also in American Studies, Art History and Archaeology, Classics, Government and Politics, History, Jewish Studies, Philosophy, and Women's Studies.

# Jewish Studies Major

**Program Director:** Maxine Grossman, Ph.D.

The Jewish Studies major provides broad training in Jewish Studies, with specializations in History, Literature and Culture, and Philosophy. Yiddish, Hebrew, and Israel Studies are important subfields. Alongside other Arts and Humanities majors, the JWST program provides training in research, analysis, and writing.

Students may choose among two tracks:

1. General Jewish Studies, 36 credits and no second language requirement
2. Language Enhanced, 39 credits, including six credits at the upper (3xx/4xx) level.

**Note:** Students who complete the language track will fulfill the Global Engagement Requirement of the College of Arts and Humanities.

# Program Objectives

The Meyerhoff Program and Center for Jewish Studies encourages research about and provides instruction in the rich history and culture of the Jewish people, from earliest times to the present day. Our regular course offerings introduce students to the Jewish Bible, the Rabbinic tradition, and modern Jewish literature and languages. Areas of particular strength among our faculty include both Hebrew and Yiddish language instruction, modern Jewish history, and cultural studies (including film and literature). Contemporary issues that matter to students -- antisemitism, diaspora studies, contemporary Jewish institutions and the nonprofit world -- are explored in seminars and lecture courses that feature small student-teacher ratios and lively discussion. Internships

and independent studies provide additional opportunities for Jewish Studies majors to learn in vibrant and relevant ways.

The Jewish Studies program provides undergraduate majors with an appreciation for the interdisciplinary nature of Jewish Studies, understanding that Jewish literary texts, Jewish history, and Jewish culture and thought are, to a large degree, inseparable. In turn, this interdisciplinarity leads students to develop important professional skills in close reading, thoughtful analysis and interpretation, and intellectual problem-solving. The Jewish Studies major serves on its own as the basis for a powerful humanities education. In tandem with another major (in STEM, Business, Journalism, or Education, for example), the Jewish Studies major provides the humanistic grounding that prepares students for a career in the professions and a lifetime of intellectual exploration.

## Admission to the Major

Students will meet with an advisor to review the requirements for the major and create a four-year plan. Advisors engage with students to help them select courses that appeal to their current interests, while introducing them to new and challenging areas of study. Students pursuing the language-enhanced track will have the opportunity to test for Hebrew proficiency through the World Language Placement in Hebrew. For more information, contact hebrew-advise@umd.edu.

## Program Learning Outcomes

The Jewish Studies program seeks to provide undergraduate majors with an appreciation for the interdisciplinary nature of Jewish Studies (understanding that Jewish literary texts, Jewish history, and Jewish culture and thought are to a large degree inseparable). A student who completes the Jewish Studies major:

1. Understands the chronological development and/or major themes of Jewish history and culture.
2. Examines a historical or interpretive problem in a core field of Jewish Studies.
3. Supports the results of independent research and analysis in written form.
4. For Language Track: Interprets formal written Hebrew with critical comprehension.

# REQUIREMENTS

## Required of All Students

Jewish Studies majors in all tracks take 15 credits of coursework consisting of 12 credits of foundations (usually taken in the first two years of the major) and a capstone seminar (usually taken in the third or fourth year of the major). Up to two Hebrew or Yiddish language courses at any level can count toward the major (other languages with the written permission of JWST advisor).

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Foundations** | | |
| One of the two following Big Question courses: | | 3 |
| JWST187 | God, Land, Power, and the People: Moral Issues in the Jewish Historical Experience | |
| JWST171 | Is Judaism a Religion? | |
| **Three of the following from at least two areas:** | | **9** |
| History | | |
| JWST231 | Jewish Texts and Cultures of the Second Temple Period | |
| JWST233 | Why the Jews? Historical and Cultural Investigations | |
| JWST275 | Urban Dreams and Nightmares: The Jewish Experience of Cities | |
| ISRL289 | New Explorations in Israel Studies (ISRL289I: The Israeli/Palestinian Conflict: Fundamental Questions) | |
| Literature and/or Film | | |
| JWST272 | Diversify and Multiply: Jewish Culture and the Production of an Identity | |
| ISRL282 | | |
| Thought, Culture, and/or Religion | | |
| JWST250 | Fundamental Concepts of Judaism | |
| JWST262 | Introduction to the Hebrew Bible/Old Testament | |
| ISRL249 | Selected Topics in Israel Studies | |
| **Capstone** | | **3-4** |
| One of the following: | | |
| JWST409 | Research Seminar in Jewish Studies | |
| ISRL448 | Seminar in Israel Studies | |
| **Major Track (Select one of the following):** | | **21-24** |
| General Jewish Studies Track (21 credits; see below) | | |
| Language Enhanced Track (24 credits; see below) | | |
| **Total Credits** | | **36-40** |

## Major Tracks

| Course | Title | Credits |
|---|---|---|
| **General Jewish Studies Track** | | |
| Area of Emphasis: Four Courses at the 300-400 Level in One of the Core Jewish StudiesAreas | | 12 |
| In-Major Electives (Three Courses in Jewish Studies) | | 9 |
| **Total Credits** | | **21** |

| Course | Title | Credits |
|---|---|---|
| **Language Enhanced Track** | | |
| Area of Emphasis | | 15 |
| Six Credits at 3XX-4XX Level in Hebrew or Yiddish [1] | | |
| Nine Credits at 3XX-4XX Level in One of the Core Jewish Studies Areas | | |
| In-Major Electives (Three Courses in Jewish Studies) | | 9 |
| **Total Credits** | | **24** |

[1] Other languages by written permission of the JWST advisor.

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Hebrew Studies Minor (JWST)

**College of Arts and Humanities**
School of Languages, Literatures, and Cultures
http://sllc.umd.edu/hebrew/

**Program Director:** Avital Karpman, Ph.D.

The minor in Hebrew is an interdisciplinary program offered through the cooperation of the **School of Languages, Literatures, and Cultures (SLLC)** and the **Jewish Studies Program.**

The minor in Hebrew will prepare students to function in a wide variety of communicative situations in Hebrew-speaking settings. Students will hone their skills in reading, writing, listening, speaking and cultural understanding. The minor consists of 16 or more credits from five courses and includes required advanced language courses and electives in topics such as Israeli literature, Israel studies and Zionism, Israeli cinema and Hebrew Bible.

To make an appointment to explore or declare a minor go to: http://arhu.umd.edu/academics/undergraduate-studies/minors/.

## Program Learning Outcomes

1. Students will demonstrate proficiency in reading, writing, listening and speaking corresponding with the ACTFL definition of advanced-high.
2. Students will show an in-depth understanding of aspects of Israeli culture.

## REQUIREMENTS

The Minor in Hebrew Studies consists of at least 16 credits from five courses.

Additional restrictions:

- Nine credits of the minor must be at the upper level (300/400).
- No more than six credits (two courses) may count toward both the student's major and the Hebrew minor.
- No more than one upper-division course may be taken in English translation.
- Independent study and special courses offered in Winter and Summer terms may be counted toward the Minor with the approval of the Advisor.
- No more than six credits (one or two courses) may be taken at an institution other than the University of Maryland, College Park. All upper-division credits to be applied to the minor must be taken at this university.
- No course with an earned grade below "C-" may count toward the minor.
- An overall GPA of 2.0 in the minor is required for graduation.

## Prerequisites

These courses, or similar background experience and World Language Placement scores are pre-requisites and do not count toward the minor.

Please note that course numbers may change, and students may place out of some of the courses.

| Course | Title | Credits |
|---|---|---|
| HEBR106 | Intensive Elementary Hebrew I | 4 |
| HEBR107 | Intensive Elementary Hebrew II | 4 |
| HEBR206 | Intermediate Intensive Hebrew I | 4 |

## Requirements for the Minor

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| HEBR207 | Intensive Intermediate Hebrew II | 4 |
| HEBR249 | Special Topics in Hebrew Studies (taught in Hebrew) | 3 |
| HEBR313 | Conversation and Composition I | 3 |
| HEBR314 | Conversation and Composition II | 3 |
| **Electives for the Minor** [1] | | **3** |
| JWST219 | Special Topics in Jewish Studies (JWST219I Introduction to Israeli Cinema) | |
| JWST262 | Introduction to the Hebrew Bible/Old Testament | |
| ISRL282 | | |
| JWST319 | Special Topics in Jewish Studies (JWST319K Jewry of Muscle: Zionism and Jewish Masculinity) | |
| JWST319 | Special Topics in Jewish Studies (JWST319Q Self and Other in Israeli Culture) | |
| HEBR381 | Introduction to Hebrew Cultural Studies (taught in Hebrew) | |
| HEBR386 | Experiential Learning (taught in Hebrew) | |
| HEBR499 | Independent Study in Hebrew (taught in Hebrew) | |
| JWST478 | Readings in Modern Hebrew (taught in Hebrew) | |
| HEBR498 | Special Topics in Hebrew (taught in English or Hebrew) | |
| JWST459 | Readings in Medieval Hebrew (JWST459D The Study of the Hebrew Bible in the Middle Ages) | |
| **Total Credits** | | **16** |

[1] Three or more credits required from these previously offered courses, or other relevant courses in Jewish literature, Israeli film, Biblical Hebrew, etc. may be approved by the advisor.
Note: it may be possible to arrange with JWST and ISRL professors to provide course texts and accept assignments in Hebrew rather than English. The language of instruction is often related to the proficiency abilities of the students in the class.

Note: Students who place into the advanced level may take HEBR313, HEBR314, and HEBR249. They must replace HEBR207 (a required course at the intermediate level) with the equivalent number of credits, selected in consultation with, or with the approval of, the Advisor.

## ADVISING

Advising is provided by Dr. Karpman, the Program Director (akarpman@umd.edu). Dr. Karpman meets with minor students when they declare their interest in the minor and again whenever students need to adjust their curricular plan. At the initial meeting, which should occur at least a year before graduation, Dr. Karpman helps the student map out

a course of study within the program. Dr. Karpman is also responsible for assessing the completion of the requirements for the minor.

# Israel Studies Minor

http://jewishstudies.umd.edu/academic-programs/undergraduate/is-minor/

**Program Director:** Ilai Saltzman, Ph.D.

Students doing a Minor in Israel Studies will study the history, culture and political structure of Israel and its place in the Middle East. Students from all majors are encouraged to apply.

To make an appointment to explore or declare a minor go to: http://arhu.umd.edu/undergraduate/academics/minors/.

Students should also contact **Dr. Ilai Saltzman**, Israel Studies Advisor
saltzman@umd.edu
0124A Taliaferro Hall
College Park, MD 20742
Or visit: http://israelstudies.umd.edu

## REQUIREMENTS

The minor consists of 15 credits, and is organized around the following requirements:

| Course | Title | Credits |
|---|---|---|
| **Required Core Courses** | | |
| ISRL342/ HIST376 | History of Modern Israel [1] | 3 |
| ISRL448 | Seminar in Israel Studies | 3 |
| Select one course in the area of Middle East Studies: [2] | | 3 |
| HIST120 | Islamic Civilization | |
| HIST491 | History of the Ottoman Empire | |
| **Elective Courses** | | |
| Select six credits of the following: | | 6 |
| ISRL289 | New Explorations in Israel Studies (ISRL289I) | |
| ISRL448 | Seminar in Israel Studies (ISRL448A) | |
| ISRL448 | Seminar in Israel Studies (ISRL448B) | |
| ISRL449 | Advanced Topics in Israel Studies | |
| HEBR106 | Intensive Elementary Hebrew I | |
| HEBR107 | Intensive Elementary Hebrew II | |
| HEBR212 | Intermediate Hebrew II [3] | |
| ARAB104 | Elementary Modern Standard Arabic I-II [3] | |
| ARAB105 | Elementary Modern Standard Arabic III-IV [3] | |
| ARAB204 | Intermediate Modern Standard Arabic I [3] | |
| ARAB205 | Intermediate Modern Standard Arabic II [3] | |
| ARAB207 | Egyptian Colloquial Arabic II [3] | |
| ARAB304 | Advanced Modern Standard Arabic I | |
| ARAB305 | Advanced Modern Standard Arabic II | |
| JWST304 | Critical Approaches to Israeli Culture | |
| HEBR313 | Conversation and Composition I | |
| HEBR314 | Conversation and Composition II | |
| HEBR381 | Introduction to Hebrew Cultural Studies | |
| JWST478 | Readings in Modern Hebrew | |
| JWST471 | Modern Hebrew Literature in Translation | |
| **Total Credits** | | **15** |

1. A comparable course at another university may substitute for this; consult the Minor Advisor
2. To fulfill the Middle East Studies requirement, students must take one of the courses listed below or a comparable course. Courses within ISRL cannot be counted for this requirement. This list is not complete; other courses may be substituted with the approval of the Advisor. Students may also take one additional course from this list as an elective for credit toward the Minor. Other courses in Middle East Studies at UMD or elsewhere may be substituted for those on this list in consultation with the Advisor. HIST, COMM, GVPT, and SLLC all regularly offer special topics courses on the Middle East.
3. No more than 3 credits of language instruction below the 3xx-level may be credited toward the Minor.
4. Special Topics in Israel: (Topics change on an annual/semester basis, generally taught by distinguished visiting faculty.)

**Special Topics in recent years have included:** The Arab-Israeli Conflict through Film; Introduction to Israeli Cinema; Immigration & Ethnicity in Israel; Israel Politics and Society; Women and Gender in Israel; Public Culture in Israel; Israel Society as Seen Through Literature & Culture; Cultural Diversity and Multiple Identities in Contemporary Israeli Society; Society Politics and Mass Media in Israel; The Theater of Terror: Modern Terrorism and Mass Media; Israeli Politics for Young Leaders, and more.

**Other courses may be applied toward the minor by petition.**

## Restrictions

- Coursework must include at least 9 3xx or 4xx-level credits, of which 6 of those credits MUST be taken at University of Maryland. These include credits earned in UM Study Abroad programs.
- A student may use a maximum of 6 credits (two courses) to satisfy requirements for both a major and a minor. Courses completed for one minor, may not be used to satisfy the requirements for another minor.
- No courses with an earned grade below “C-” may count towards the minor.
- An overall GPA of 2.0 in the minor is required for graduation.
- Up to 2 courses may be taken at another university if the courses are approved by the Israel Studies Advisor. These would include credits earned in non-UM Study Abroad Programs.

# Jewish Studies Minor

**Jewish Studies Program (JWST)**
0124 Taliaferro Hall
Phone: 301-405-4975
jwst-contact@umd.edu
http://jewishstudies.umd.edu/academic-programs/undergraduate/js-minor/

**Program Director:** Maxine Grossman, Ph.D.

The Minor in Jewish Studies offers a broad overview of the principal aspects of Jewish Studies as a field. Students are encouraged to take courses in a variety of areas through a combination of required fields and general electives.

To make an appointment to explore or declare a minor, go to http://arhu.umd.edu/academics/undergraduate-studies/minors/.

## REQUIREMENTS

15 credits are to be distributed as follows:

| Course | Title | Credits |
|---|---|---|
| History | | 3 |
| Literature | | 3 |
| Thought, Religion, or Culture | | 3 |
| Electives | | 6 |
| **Total Credits** | | **15** |

- A minimum of 9 credits must be at the 3xx or 4xx-level.
- All credits must be earned with a grade of "C-" or above.
- An overall GPA of 2.0 in the minor is required for graduation.
- A list of qualifying courses in each category is available from the Director of the Jewish Studies program.
- Up to 3 credits of 1xx or 2xx-level Hebrew or Yiddish language study may be credited toward the minor. In exceptional cases, students may petition to have other languages included.

## Restrictions

- Students enrolled in the Jewish Studies Major are not eligible to enroll in the minor.
- At least 6 credits of 3xx or 4xx-level credit must be taken at the University of Maryland.
- No more than 6 credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than 6 credits may also be applied to a major.

# Religions of the Ancient Middle East Major

http://jewishstudies.umd.edu/academic-programs/undergraduate/rame-ba/

**Program Director:** Maxine Grossman, Ph.D.

The major in Religions of the Ancient Middle East (RAME) (30 cr) offers students the opportunity to explore the world out of which biblical Israel and ancient Judaism, Christianity, and early Islam emerged, as well as the wide array of other religious and cultural beliefs, practices, and institutions that flourished between about 1200 BCE/BC and 850 CE/AD. In *Foundations* courses students take at least one course that addresses a significant question about the nature of religion and religious change or the interplay of religious groups. In addition they must take two courses that survey two geographical, cultural, or chronological sub areas. In addition to *Electives*, all students take an interdisciplinary *Capstone* seminar, typically in their final year.

*Language Track* (min. 36 cr). Although there are no language requirements for the major, students who wish to incorporate ancient languages into their work are encouraged to pursue a language enhanced track. Students take six credits of language at the second year level as part of their major. They are also are expected to make use of their target languages in completing the research project for the Capstone course. The University currently offers Arabic, Hebrew, and Greek. The number of credits per course varies by language. Other languages such as Aramaic, Akkadian, or Syriac taken through CourseShare or the Consortium of Universities of the Washington Metropolitan Area may be substituted.

**Note:** Students pursuing the language track may need to take up to 12 credits in language prerequisites to attain the second year level.

## Program Learning Outcomes

1. Demonstrate an understanding of fundamental methodological, historical, and/or comparative approaches to the study of religion and culture in the ancient Near East and apply this understanding to specific relevant examples.
2. Describe and illustrate the development of at least two chronological, geographical, or cultural subareas.
3. Formulate and defend an argument about religion and culture in the ancient near east informed by the modern scholarship and amply illustrated with reference to ancient evidence.
4. Language Track: Demonstrate the ability to use the languages they have studied as a tool for deep engagement with ancient source material.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Foundations** | | |
| One approved Big Question course | | 3 |
| JWST230 | Inventing Traditions: The Making of Rabbinic Judaism | |
| RELS271 | What is Religion? | |
| RELS273 | Jesus, Mani, and Muhammad: The Dynamics of New Religious Movements | |
| RELS274 | Jerusalem in Antiquity: The History of Sacred Space in a Holy City | |
| Three courses in two or more geographical, chronological, or cultural sub-areas | | 9 |
| HIST120 | Islamic Civilization | |
| RELS264 | Introduction to the New Testament | |
| JWST225 | Religions of the Ancient Near East | |
| JWST231 | Jewish Texts and Cultures of the Second Temple Period | |
| JWST262 | Introduction to the Hebrew Bible/Old Testament | |
| **Electives (four must be at the upper level)** [1] | | **15** |
| CLAS305 | Archaeological Methods and Practice | |
| HIST110 | The Ancient World | |
| HIST320 | Early Christianity: Jesus to Constantine | |
| HIST428 | Selected Topics in History (HIST428R: Transition to Islam: From the Ancient to the Medieval Muslim World) | |
| JWST324 | Biblical History and Culture | |
| JWST325 | Jews and Judaism in Antiquity I: Sixth Century BCE through the First Century CE | |
| JWST326 | Jews and Judaism in Antiquity II: First through Seventh Century | |
| JWST430 | Dead Sea Scrolls | |
| JWST468 | Readings in the Hebrew Bible | |
| JWST469 | Readings in Rabbinic Hebrew | |

| | | |
|---|---|---|
| **Capstone** | | **3** |
| RELS408 | Capstone Seminar for Religions of the Ancient Middle East | |
| **Total Credits** | | **30** |

[1] Other courses by permission.

# Tracks

## Language Track

- Minimum six additional credits; minimum 36 credits total
- Prerequisite: First year language (6-12 credits)
- Six credits in Hebrew, Arabic, Greek, or other relevant language beyond the first year level
- **Note:** Students who place directly into second year language or above need only complete six credits of language. The number of prerequisite language credits varies by language

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Religious Studies Minor

**Jewish Studies Program (JWST)**
0124 Taliaferro Hall
Phone: 301-405-4975
jwst-contact@umd.edu
http://religious-studies.umd.edu

**Program Director:** Maxine Grossman, Ph.D.

Religious Studies is an interdisciplinary field that enables students to study the texts, culture, history, beliefs, and practices of the religions of the world, present and past. The minor in Religious Studies draws from a wide range of departments and programs (including Anthropology, Art History, Classics, English, History, Jewish Studies, and Philosophy) and offers the opportunity for both in-depth and wide-ranging study. A required core course (RELS271) introduces students to religions of the world and to the academic study of religion. In addition to this course, students are required to take three courses at the 3xx or 4xx-level and another two at the 1xx, 2xx, 3xx, or 4xx-level. Completion of coursework includes fulfillment of a breadth requirement, which demonstrates that students have been exposed to a variety of religious traditions, periods, and geographic regions. Selection of courses in consultation with the advisor will ensure that students complete this breadth requirement.

To make an appointment to explore or declare a minor, go to http://arhu.umd.edu/academics/undergraduate-studies/minors/.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| RELS271 | What is Religion? | 3 |
| Select three courses at the 3xx-level or above [1] | | 9 |
| Select two additional courses at the 1xx, 2xx, 3xx, or 4xx-level [2] | | 6 |
| **Total Credits** | | **18** |

[1] These courses can be in any of a variety of subjects, chosen in consultation with an advisor. See Breadth requirement below.
[2] Chosen in consultation with an advisor. See Breadth requirement.

Many courses are now offered with the RELS prefix. Other regularly-offered courses that may be counted toward the minor are:

| Course | Title | Credits |
|---|---|---|
| ARTH200 | Art and Society in Ancient and Medieval Europe and the Mediterranean | 3 |
| ARTH201 | Art and Society in the West from the Renaissance to the Present | 3 |
| ARTH290 | Art and Society in Asia | 3 |
| CLAS170 | Ancient Myths and Modern Lives | 3 |
| CLAS330 | Ancient Greek Religion: Gods, Myths, Temples | 3 |
| CLAS470 | Approaches to Greek Mythology | 3 |
| ENGL262 | Introduction to the Hebrew Bible/Old Testament | 3 |
| ENGL302 | Medieval Literature in Translation | 3 |
| ENGL310 | Medieval and Renaissance British Literature | 3 |
| HIST111 | The Medieval World | 3 |
| HIST120 | Islamic Civilization | 3 |
| HIST284 | East Asian Civilization I | 3 |
| HIST287 | Why the Jews? Historical and Cultural Investigations | 3 |
| HIST306 | History of Religion in America | 3 |
| HIST330 | Europe in the Making: The Early Medieval West (A.D. 300-1000) | 3 |
| HIST331 | Europe in the High Middle Ages: 1000-1500 | 3 |
| HIST332 | Renaissance Europe | 3 |
| HIST333 | The European Reformations | 3 |
| JWST141 | American Jewish Experience | 3 |
| JWST171 | Is Judaism a Religion? | 3 |
| JWST225 | Religions of the Ancient Near East | 3 |
| JWST274 | Jerusalem in Antiquity: The History of Sacred Space in a Holy City | 3 |
| JWST324 | Biblical History and Culture | 3 |
| JWST331 | Early Christianity: Jesus to Constantine | 3 |
| JWST430 | Dead Sea Scrolls | 3 |
| JWST492 | Sex, Gender, and Jewish Identity | 3 |
| PHIL236 | Philosophy of Religion | 3 |
| Other courses may be taken with the permission of the minor advisor. | | |

# Breadth Requirement

The breadth requirement ensures that students are exposed to a diversity of religious phenomena. Most Religious Studies students will complete this requirement simply by selecting from the wide variety of courses available to them. Students with particular interests (in a single approach,

like Art History, or a single setting, like contemporary North America) will need to take at least one course that falls outside their particular focus of interest. Students will need to demonstrate:

1. Exposure to a diversity of religious traditions (understood to include African religions, Buddhism, Christianity, Hinduism, Islam, and Judaism, among others), in coursework that extends beyond a single geographic area (such as the Americas, Asia, or the Mediterranean world).
2. Exposure to diverse temporal periods (including antiquity, the medieval and early modern periods, and modernity).
3. Experience of multiple approaches to religious phenomena or the study of religion (for example, art history, philosophy, historical approaches, and comparative methods).
4. Depth: At least one course must incorporate the focused study of a single religious tradition or cluster of traditions.

Examples: A student with academic focus in religions of the ancient Mediterranean might complete the breadth requirement with a single course on Asian religions. A student concentrating on art historical approaches to religion might take one course in philosophy or literature. A student whose interests run to comparative and cross-cultural coursework might take a course in the focused study of a single tradition.

- A minimum of 9 credits must be at the 3xx or 4xx-level.
- All courses must be passed with a grade of "C-" or above.
- An overall GPA of 2.0 in the minor is required for graduation.
- A list of qualifying courses is available from the advisor to the RELS program.
- At least six credits of 3xx or 4xx-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than six credits may also be applied to a major.

# Latin American and Caribbean Studies Certificate

**College of Arts and Humanities**
4112 H.J. Patterson Hall
Phone: 301-405-9626
lacs@umd.edu
http://lacs.umd.edu

**Director:** Isabella Alcañiz, Ph.D.
**Assistant Director:** Eric Tomala

The interdisciplinary certificate program in Latin American and Caribbean Studies is open to University of Maryland, College Park, undergraduates in any major who are interested in Latin America and the Caribbean.

Interested students should contact our Director and Program Coordinator by email or phone (lacs@umd.edu, 301-405-9626). Please also visit our web page at http://lacs.umd.edu.

## REQUIREMENTS

The undergraduate certificate in Latin American and Caribbean Studies will be awarded to students who have completed 21 credits with a cumulative GPA of 2.0 or better in the following areas:

| Course | Title | Credits |
|---|---|---|
| **Core Curriculum for All Certificate Students** | | |
| LACS234 | Issues in Latin American and Caribbean Studies I | 3 |
| or SPAN/PORT234 | Issues in Latin American and Caribbean Studies I | |
| LACS235 | Issues in Latin American and Caribbean Studies II | 3 |
| or SPAN/PORT235 | Issues in Latin American and Caribbean Studies II | |
| Select one of the following: | | 3 |
| LACS/HIST250 | History of Colonial Latin America | |
| LACS/HIST251 | Latin America Since Independence | |
| LACS/SPAN458 | Senior Capstone Course in Latin American and Caribbean Studies | 3 |
| **Additional Courses in Latin American Studies** | | |
| Nine credits of additional courses must be chosen from an approved list and from at least two different departments [1] | | 9 |
| **Foreign Language Competency** [2] | | |
| **Total Credits** | | **21** |

1 At least six credits must be at the 3xx- or 4xx-level. See Latin American and Caribbean Studies advisor for details.

2 All certificate students must demonstrate their competence in a language spoken in Latin America or the Caribbean. Competence may be proven with a grade of "C+" or above in an intermediate-level language course or higher. Fluent speakers of Spanish or Portuguese, or students with extensive experience, should consult with the Latin American and Caribbean Studies advisor for procedures to demonstrate their language competence.

An overall GPA of 2.0 in the certificate is required for graduation.

# Latin American and Caribbean Studies Minor

**College of Arts and Humanities**
4112 H.J. Patterson Hall
Phone: 301-405-9626
lacs@umd.edu (lasc@umd.edu)
http://lacs.umd.edu

**Director:** Isabella Alcañiz, Ph.D.
**Assistant Director:** Eric Tomala

The interdisciplinary minor program in Latin American and Caribbean Studies is open to University of Maryland, College Park, undergraduates in any major who are interested in Latin America and/or the Caribbean. The minor will help prepare students for careers related to Latin America and the Caribbean.

# REQUIREMENTS

The undergraduate minor in Latin American and Caribbean Studies will be awarded to students who have completed 15 credits with a cumulative GPA of 2.0 or better in the following areas:

| Course | Title | Credits |
|---|---|---|
| LACS/SPAN234 | Issues in Latin American and Caribbean Studies I | 3 |
| or LACS/SPAN235 | Issues in Latin American and Caribbean Studies II | |
| HIST/LACS250 | History of Colonial Latin America | 3 |
| or HIST251 | Latin America Since Independence | |
| LACS486 | Internship in Latin American/Caribbean Studies | 3 |
| ELECTIVE | Two 300 or 400 level elective courses [1] | 6 |
| **Total Credits** | | **15** |

[1] Elective courses will contain at least 75% Latin American-related content and will be from two different departments.

## Additional Requirement

Additionally, all certificate students must demonstrate their competence in one of the languages of Latin America and the Caribbean, including Spanish or Portuguese. Other languages may be used to fulfill this goal with the permission of the LACS undergraduate advisor. Competency may be proven with a grade of "C+" or better in an intermediate-level course or higher. Native speakers of Spanish or Portuguese or students with extensive experience in these languages should consult with the Latin American Studies advisor to demonstrate competence through a placement exam.

# Linguistics

**College of Arts and Humanities**
1401 Marie Mount Hall
Phone: 301-405-7002
http://ling.umd.edu

Human beings share a capacity for language, unique to the species. This capacity guides the learning of language in children and constrains the character of the languages we come to have. To study it, we pursue various sources of evidence. Among them are: the grammars of individual languages; patterns of grammatical variation across languages; the development of language in children; the mental processing of language in use; the embodiment of language in the brain; and computational approaches to all of these. All of these perspectives converge on a single natural object, the human language faculty, whose study unifies our work. Research in our department spans syntax, semantics, phonology, language acquisition, computational linguistics, psycholinguistics and neurolinguistics.

# PROGRAMS

## Major

- Linguistics Major (p. 201)

## Minor

- Linguistics Minor (p. 202)

# ADVISING

Linguistics majors have a dual system of advising. The department advisor is a faculty member in the Linguistics Department and advises students about major requirements and courses. For more general advising (about general education requirements, ARHU requirements, etc), students will go to their college (ARHU) advisor. Students may choose to make appointments every semester with either or both advisors, but will have mandatory advising at both the departmental and college level at three different points:

- first semester matriculated in the major
- between 45-55 credits
- between 86-100 credits

Failure to meet with both advisors for mandatory advising will result in being blocked from registering for classes for the following semester.

For more information about the major, advising, and how to contact a Linguistics advisor, visit the Linguistics Department web page at: http://linguistics.umd.edu/academic-programs/undergraduate/linguistics-ba/.

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

# OPPORTUNITIES

## Undergraduate Research Experiences

There are opportunities in the department for undergraduate students to get involved in doing research. Students interested in research in linguistics should submit a resume and/or project proposal to the undergraduate advisor or to an appropriate faculty member. Attempts will be made to match students with appropriate faculty advisors. The possibility of doing research is not guaranteed for every student, but will depend on the student's skills and the availability and willingness of a faculty member to direct the project.

In addition to opportunities during the regular semester to receive course credit for research assistantships, students can also apply for funding to work as a research assistant during the summer through the Linguistics Department Baggett Scholarship program. More information about the Baggett summer program can be found on the website at: http://linguistics.umd.edu/academic-programs/graduate/baggett/.

For research opportunities in specific labs/facilities see the section "Academic Programs and Departmental Facilities" (below). For general information about research being done in our department, visit: http://linguistics.umd.edu/research/.

## Fieldwork Opportunities

Students seeking an in-depth research experience doing fieldwork have an opportunity to participate in the Summer Field School at UMD's Guatemala Field Station (https://languagescience.umd.edu/beyond-umd/guatemala-field-station/).

## Honors Program

Academically talented Linguistics majors with junior standing may petition to become honors candidates in linguistics. Honors students work on a research project under a faculty advisor, write an honors thesis, and present the work in a public forum.

## Student Societies and Professional Organizations

The UMD Linguistics Club is periodically active and has regular meetings, depending on the leadership of the current majors. More information can be obtained by emailing a linguistics advisor.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

Also, students can apply for a Linguistics Department Baggett Scholarship to work (in a paid position) as a research assistant during the summer. See "Awards and Recognition" below.

## Awards and Recognition

The Department of Linguistics offers several Baggett Summer Scholarships every year. These are paid, faculty-mentored summer research positions open to UMD undergraduate students with training in linguistics or cognitive science.

More information can be found on the website at: http://linguistics.umd.edu/academic-programs/graduate/baggett/.

## Academic Programs and Departmental Facilities

Students can become involved in a wide range of research activities including computer programming and experimental projects in language acquisition (https://linguistics.umd.edu/research/language-acquisition/), psycholinguistics (https://linguistics.umd.edu/research/psycholinguistics/) and neurolinguistics (https://linguistics.umd.edu/research/neurolinguistics/).

Selected undergraduate students work alongside faculty and graduate students—learning to design, execute, and analyze experiments—within our Cognitive Neuroscience of Language Labs, including: the Language Acquisition Lab (https://linguistics.umd.edu/resources-facilities/labs/project-on-childrens-language-learning/), the EEG/ERP Lab (https://linguistics.umd.edu/resources-facilities/labs/EEG-ERP%20Lab/), the Maryland-KIT MEG Lab (https://linguistics.umd.edu/resources-facilities/labs/KIT-Maryland-MEG-Lab/), and the Maryland Neuroimaging Center (http://mnc.umd.edu/home/).

Students can also take advantage of the department's affiliation with the Language Science Center (http://languagescience.umd.edu) which offers additional resources and programs such as PULSAR (http://languagescience.umd.edu/education/pulsar-undergraduate-program/), an undergraduate certificate program offering interdisciplinary training in language science, and the Guatemala Field Station (http://languagescience.umd.edu/beyond-umd/guatemala-field-station/).

For more information about ongoing research, lab facilities, and opportunities for undergraduate involvement, go to the following web page and scroll down for various topics: http://linguistics.umd.edu/academic-programs/undergraduate/.

# Linguistics Major

**Program Director:** Tonia Bleam, Ph.D.

The Linguistics Department offers courses on many aspects of the scientific study of language and an interdisciplinary major leading to a Bachelor of Arts.

Research in linguistics aims to discover how a person's linguistic capacity is represented in the mind, how that knowledge is acquired, what aspects are innate, and how language is processed in the mind and brain. Students learn how to address these questions through various sources of evidence, such as descriptions of individual languages, patterns of grammatical variation and invariance, the development of language in children, the mental processes of language in use, computational models of acquisition and processing, and patterns of physiological activity in the brain.

The major in Linguistics is designed for students who are primarily interested in human language per se, or in describing particular languages in a systematic and psychologically plausible way, or in using language as a tool to reveal some aspect of human mental capacities. Such a major provides useful preparation for further research in linguistics and cognitive science, as well as for professional programs in world languages, language teaching, communication, psychology, speech pathology, and artificial intelligence. Because of the emphasis placed on analytic thinking, scientific reasoning, and evidence-based argumentation, the linguistics major also prepares students for a broad range of careers outside of the language sciences.

## Program Learning Outcomes

The Department of Linguistics B.A. program seeks to expose majors to fundamental questions about the nature of the human mind, using Language as a vehicle for examining this issue. The program aims to cultivate strong empirical research skills, data analysis, application of scientific methodology, and the ability to communicate clear, logical arguments. Through their coursework, students are exposed to data from a broad range of languages and dialects, leading to an understanding that all varieties are equally complex and rule-governed. By the time students complete the requirements for the major, they can expect to have mastered the following measurable learning outcomes:

1. Students demonstrate the ability to apply scientific methodology to data analysis and to develop effective argumentation skills.
2. Students demonstrate the ability to critically evaluate proposals in the field.
3. Students incorporate scientific writing style in essays, review papers, and research papers.
4. Students effectively and persuasively defend an analysis of (Western and non-Western as well as prestigious and marginalized varieties of) a language's phonological system
5. Students effectively and persuasively defend an analysis of (Western and non-Western as well as prestigious and marginalized varieties of) a language's syntactic system
6. Students recognize how the values, practices and policies of a society may privilege some dialects over others (without linguistic justification and often with discriminatory and harmful results) and recognize that one's version of a language reflects both their personal and social identities.

# REQUIREMENTS

A grade of at least "C-" is required in all major courses. An overall GPA of 2.0 in the major is required for graduation. The Linguistics major consists of 39 credits: 24 credits of Linguistics Core classes plus 12 credits from one of the Tracks, as specified below.

| Course | Title | Credits |
|---|---|---|
| **Core Required of All Majors** | | |
| LING200 | Introductory Linguistics | 3 |
| LING240 | Language and Mind | 3 |
| LING311 | Syntax I | 3 |
| LING321 | Phonology I | 3 |
| Select two of the following: | | 6 |
| LING312 | Syntax II | |
| LING322 | Phonology II | |
| LING320 | Phonetics | |
| LING410 | Grammar and Meaning | |
| LING440 | Grammars and Cognition | |
| LING444 | Child Language Acquisition | |
| Three 3xx-4xx level LING electives | | 9 |
| **Track** | | |
| Select one of the following tracks: | | 12 |
| Grammars and Cognition Track | | |
| Language Track | | |
| **Total Credits** | | **39** |

## Grammars and Cognition Track

| Course | Title | Credits |
|---|---|---|
| PHIL170 | Introduction to Symbolic Logic | 3 |
| LING350 | Philosophy of Language | 3 |
| or PHIL360 | Philosophy of Language | |
| Select two approved electives in LING, PSYC, HESP, PHIL, or CMSC | | 6 |
| **Total Credits** | | **12** |

## Language Track

| Course | Title | Credits |
|---|---|---|
| 12 credits of a single chosen language [1] | | 12 |
| **Total Credits** | | **12** |

[1] At least 3 of the 12 credits must be at or above the 2xx level.

There are no requirements for support courses for the Linguistics major.

Students pursuing the major should review the academic benchmarks established for this program. See: www.4yearplans.umd.edu (http://www.4yearplans.umd.edu). Students will be periodically reviewed to insure they are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

## Other Requirements for the Major

- LING200 followed by LING240 must be taken before any other courses in the major. These courses serve as a gateway to the major. A grade of "C-" or better is required in both courses before taking further courses in Linguistics. However, a grade of "B" or higher in LING240 is a relatively good predictor of continued success in the rest of the major (as courses become more difficult). Both courses are offered every semester.
- A grade of "C-" or better is required in prerequisite courses.
- After LING240, students should take LING311 (Syntax I) and LING321 (Phonology I), as they are prerequisites for other required courses. These courses can be taken together in the same semester. These courses are offered every semester (fall and spring).
- No more than 1 independent study or lab course (3 credits) can be used towards the three 3xx-4xx level LING electives (part of the LING core).
- 3xx-4xx courses beyond LING311 and LING321 are generally offered just once per year. Check Testudo to see when these are offered in a given year (either fall or spring).
- Optional courses for the major are not necessarily offered on a regular basis. Students should check with the undergraduate advisor to find out which courses will be offered and when.
- For the Language Track, the "12 credits of a single chosen language" must be courses that focus on language (and not, for example, history, literature or culture taught in the language).
- The "structure or history of the language" course is no longer required for the Language Track but such a course can be taken to count towards the 12 credits of the language.
- Note that courses cannot be double-counted for different requirements in the major. All of the "boxes" must be filled in by different courses such that you reach the required number of credits with all of the categories fulfilled.
- Electives for the Cognition Track must be approved by the linguistics advisor.

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Linguistics Minor

1401 Marie Mount Hall
Phone: 301-405-7002
http://ling.umd.edu/

**Minor Advisor:** Margaret J. Antonisse, Ph.D.

The minor in linguistics will introduce students to key concepts that form the basis of modern generative linguistics. Students are introduced to the different sub-areas of linguistics in two introductory courses. Two more advanced courses in syntax and in phonology build on this foundation. One 3xx-4xx level linguistics elective completes the minor. The minor in linguistics will be of relevance to students majoring in Languages, English, Psychology, Philosophy, Education and Computer Science.

To make an appointment to explore or declare a minor, go to: http://arhu.umd.edu/undergraduate/academics/minors/.

More information is available at the linguistics website, "Minoring in Linguistics" at: http://linguistics.umd.edu/academic-programs/undergraduate/linguistics-minor/.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| LING200 | Introductory Linguistics | 3 |
| LING240 | Language and Mind | 3 |
| LING321 | Phonology I | 3 |
| LING311 | Syntax I | 3 |
| Select any one 3xx or 4xx level linguistics elective as a fifth course in linguistics | | 3 |
| **Total Credits** | | **15** |

- A total of 15 credits is required.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- All courses counting for the minor must be actual "classroom" courses (i.e., not independent study, research assistantships, or internships).

# Philosophy

**College of Arts and Humanities**
1120A Skinner Building
Phone: 301-405-5689
lgilman@umd.edu
http://philosophy.umd.edu

The department offers a varied and challenging undergraduate curriculum that allows students to acquire a solid general education in philosophy or to concentrate in more specialized areas. Studying philosophy provides good preparation for some popular careers. Recent data show that philosophy majors do very well on the Law School Admission Test (LSAT), for example. We don't find this surprising, since studying philosophy develops capacities to analyze complex arguments and to think critically.

## PROGRAMS

### Majors

- Philosophy Major (p. 204)
- Philosophy, Politics, and Economics Major (p. 205)

### Minor

- Philosophy Minor (p. 204)

## ADVISING

Philosophy majors must be advised each semester before registration. Contact philadv@umd.edu for more information.

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

## OPPORTUNITIES

### Honors Program

The Philosophy Honors Program allows exceptional students the opportunity to work closely with a member of the Philosophy faculty on a project, typically a 30-40 page philosophical paper (i.e., "Honors Thesis"), during the final two semesters of his/her undergraduate career. The two semesters of independent study with the faculty advisor culminate in the student presenting and defending the Honors Thesis before a committee consisting of 2-3 faculty members in addition to the advisor.

Successful students will graduate with Honors in Philosophy.
Requirements and Procedures

- A prospective honors student should normally have a cumulative GPA of 3.5 and a GPA of 3.75 in philosophy classes with no grade below a "C" in any philosophy course.
  - A prospective honors student should find a willing faculty advisor in the spring semester before the senior year.[1]
  - The student must present a proposal to the prospective advisor at the end of the spring semester.[1]
  - The proposal will typically include a list of proposed readings, a clear and appropriately narrow topic, and a projected position to be defended in the Honors Thesis.
  - This proposal will then be submitted to the Undergraduate Affairs Committee for approval.
- If the proposal is approved, the student will enroll in 498F (3 credits) the following semester and the student and advisor will agree on a schedule for meetings and the work expected by the end of the semester.
- At the end of the semester, the advisor will evaluate the student's progress and will decide whether the student should continue work on the Honors Thesis for another semester.
- If, at the end of the first semester, the advisor judges that the project should not continue, the student will be given a grade for 498F but will not enroll in 498G in the subsequent semester and will not receive an Honors degree.
- If, at the end of the first semester, the advisor thinks the project should continue, the student will enroll in 498G (3 credits) and the student and advisor will agree on a schedule of meetings and a timeline for completion of the Honors Thesis.
- The student, in consultation with the advisor, will arrange an examining committee of at least 2 faculty members in addition to the advisor. The student will present and defend the Honors Thesis before this examining committee. The faculty advisor determines the grade for 498G but the committee determines whether the student graduates with Honors.

[1] Or, for students graduating in December, the semester prior to the student's next to last semester

### Student Societies and Professional Organizations

The Philosophy Club holds weekly meetings during the semester to discuss philosophical topics of interest to members.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Awards and Recognition

The W.E. Schlaretzki Prize is given to the most outstanding graduating senior each year. The Joseph and Beth Duckett Scholarship is given to the most outstanding junior.

# Philosophy Major

**Program Director:** Rachel Singpurwalla, Ph.D.

Philosophy investigates the foundations of reality, knowledge, and value. Students can expect to receive training in these areas, and also in clear thinking, inventive synthesis, and precise expression. For some, this will serve as preparation for graduate studies in philosophy. However, philosophical skills are useful in professions such as law, medicine, government, business management, and in any field that demands intellectual rigor. The department offers a wide range of courses, including courses on historical figures, such as Plato and Kant, traditional philosophical topics, such as the nature of the human mind, free will, and the just society, and several that deal with the philosophy of various disciplines outside philosophy itself, such as philosophy of physics and philosophy of law.

## Program Objectives

The philosophy program aims to:

1. Provide students with an understanding of a range of philosophers and philosophical problems, while encouraging as deep a critical engagement with those philosophers and problems as is feasible in the time available.
2. Equip students with the core skills involved in: careful reading; sympathetic interpretation and understanding; critical reflection; rational argumentation; creative problem solving; and the clear and well-organized expression of ideas.
3. Facilitate an awareness of the application of philosophical thought to other academic disciplines or to matters of public interest, encouraging students to apply philosophical skills more widely where appropriate.

## Program Learning Outcomes

By the end of the program of study:

1. Students should be competent in formal techniques, including, but not limited to, formal logic.
2. Students should be able to provide an exegesis of a philosophical argument.
3. Students should be able to articulate a clear, coherent thesis on a philosophical issue and place it in the context of the relevant literature.
4. Students should be able to present a reasoned defense of a philosophical thesis.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| Select 12 courses in philosophy distributed as follows: [1] | | 36 |
| Four courses at 3xx-level or above | | |
| Two courses at 4xx-level or above | | |
| One course in logic at any level | | |
| Two or more courses at 2xx-level or above in the history of pre-twentieth century philosophy | | |
| Two or more courses at 2xx-level or above in value theory (including aesthetics and political philosophy as well as ethics) | | |
| Two or more courses at 2xx-level or above in metaphysics or epistemology (including philosophy of science, philosophy of mind, and philosophy of religion, as well as metaphysics and theory of knowledge) | | |
| **Total Credits** | | **36** |

[1] Up to nine credits from outside of PHIL may be counted towards the philosophy degree upon departmental approval.

A total of at least 36 credit hours in philosophy (up to three credits of an internship course (PHIL386) can count towards the major). For a course to count toward a student's major, the grade in the course must be "C-" or above. For students who matriculated in September 2012 or later, the average of all grades counted toward the major must be 2.0 or greater. Therefore, grades of "C-" will have to be balanced with higher grades. (C- counts as 1.7 toward the GPA.)

## GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Philosophy Minor

**College of Arts and Humanities**
1128 Skinner Building
Phone: 301-405-5689
lgilman@umd.edu
http://philosophy.umd.edu

**Program Director:** Rachel Singpurwalla, Ph.D.

Philosophy investigates the foundations of reality, knowledge, and value. Students can expect to receive training in these areas, and also in clear thinking, inventive synthesis, and precise expression. For some, this will serve as preparation for graduate studies in philosophy. However, philosophical skills are useful in professions such as law, medicine, government, business management, and in any field that demands intellectual rigor. The department offers a wide range of courses, including courses on historical figures, such as Plato and Kant, traditional philosophical topics, such as the nature of the human mind, free will,

and the just society, and several that deal with the philosophy of various disciplines outside philosophy itself, such as philosophy of physics and philosophy of law.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| Three or more courses at 3xx-level or above in Philosophy [1] | | 9 |
| One or more courses at 2xx-level or above in the history of pre-twentieth century philosophy [2] | | 3 |
| One or more courses at 2xx-level or above in value theory (including aesthetics and political philosophy as well as ethics) [2] | | 3 |
| One or more courses at 2xx-level or above in metaphysics or epistemology (including philosophy of science, philosophy of mind, and philosophy of religion, as well as metaphysics and theory of knowledge) [2] | | 3 |
| **Total Credits** | | **18** |

[1] Not counting internship courses (PHIL386).

[2] See https://philosophy.umd.edu/academic-programs/undergraduate-program/philosophy-major (https://philosophy.umd.edu/academic-programs/undergraduate-program/philosophy-major/) for a list of philosophy courses that can be used to satisfy the various distributive requirements.

For a course to count toward a student's minor, the grade in the course must be "C-" or above. For students who matriculated in September 2012 or later, the average of all grades counted toward the minor must be 2.0 or greater. Therefore, grades of "C-" will have to be balanced with higher grades. ("C-" counts as 1.7 toward the GPA).

# Philosophy, Politics, and Economics Major

**Program Director:** Dan Moller, Ph.D.

The Philosophy, Politics, and Economics major brings together insights and methods from several different disciplines to help students think rigorously and creatively about pressing social and political questions. The major not only combines classes from distinct disciplines (Philosophy, Government and Politics, Public Policy, and Economics), it features courses specifically designed to integrate material from them. The skills developed in the major will be useful for careers in law, government, business, or any field that requires rigorous reasoning with a diverse set of insights, tools, and methods.

## Program Objectives

The Philosophy, Politics, and Economics program aims to:

1. equip students with methods from the disciplines of philosophy, political science, and economics;
2. encourage students to apply these methods to a diverse array of topics and questions across disciplinary boundaries, especially to normative topics and questions;
3. combine these methods in productive ways to carry out thoughtful, original research;
4. equip students with the ability to write clearly and concisely, read and distill information carefully, and construct arguments in an organized and convincing manner; and
5. inspire a love for learning from a diverse array of scholarly disciplines.

## Program Learning Outcomes

1. Students will be able to competently apply basic methods from philosophy, political science, and economics to their reasoning about difficult social and political questions.
2. Students will be able to write and think clearly and in an organized fashion about difficult social and political questions.
3. Students will be able to engage in original research to present convincing arguments for their views on difficult social and political questions.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Disciplinary Foundations** | | |
| ECON200 | Principles of Microeconomics | 3 |
| ECON201 | Principles of Macroeconomics | 3 |
| GVPT170 | American Government | 3 |
| PHIL140 | Contemporary Moral Issues | 3 |
| PHIL245 | Political and Social Philosophy I | 3 |
| PLCY100 | Foundations of Public Policy | 3 |
| **Core Sequence** | | |
| PHPE400 | Individual and Group Decision-Making | 3 |
| PHPE401 | Social Philosophy and Political Economy | 3 |
| PHPE402 | Senior Capstone in Philosophy, Politics, and Economics | 3 |
| **Electives** [1] | | |
| Select four courses (12 credits): | | 12 |
| Any PHPE course at the 300-400 level besides PHPE400, PHPE401, and PHPE402 | | |
| AASP301 | Applied Policy Analysis and the Black Community | |
| AASP314 | | |
| AASP499 | Advanced Topics in Public Policy and the Black Community | |
| BMGT468 | Special Topics in Management and Organization (BMGT468Y Entrepreneurial Capitalism Around the World) | |
| COMM330 | Argumentation and Public Policy | |
| COMM458 | Seminar in Political Communication | |
| COMM469 | The Discourse of Social Movements | |
| ECON311 | American Economic History Before the Civil War | |
| ECON312 | American Economic History After the Civil War | |
| GVPT409 | Seminar in International Relations and World Politics (GVPT409I: The Politics of Human Rights) | |
| GVPT439 | Seminar in Public Law (GVPT439A: Comparative Constitutional Law) | |
| HIST319 | Special Topics in History | |
| HIST326 | The Roman Republic | |
| HIST328 | Selected Topics in History (HIST328L Empires, Revolutions and Cold Wars) | |

| | |
|---|---|
| HIST329 | Special Topics in History |
| HIST339 | Special Topics in History |
| HIST415 | Ideas and Politics in Europe Since 1900 |
| HIST419 | Special Topics in History |
| HIST428 | Selected Topics in History |
| HIST450 | American Capitalism: 1600-1900 |
| HIST451 | American Capitalism: 1900 to Present |
| PHIL341 | Ethical Theory |
| PHIL344 | Philosophy of Race |
| PHIL347 | Philosophy of Law |
| PHIL440 | Contemporary Ethical Theory |
| PHIL445 | Contemporary Political Philosophy |
| PHIL446 | Law, Morality, and War |
| WGSS302 | Feminist, Critical Race, and Queer Theories |
| WMST400 | |
| **Total Credits** | **39** |

[1] A student may petition the Program Director to have an individual course (300-level or above) count as an elective contributing to that student's completion of the major.

For a course to count toward a student's major, the grade in the course must be "C-" or above. The average of all grades counted toward the major must be 2.0 or greater. Therefore, grades of "C-" will have to be balanced with higher grades. (C- counts as 1.7 toward the GPA.)

## GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# School of Languages, Literatures, and Cultures

**College of Arts and Humanities**
1105 Jiménez Hall
Phone: 301-405-4025
http://sllc.umd.edu

## Academic Programs

The School of Languages, Literatures, and Cultures (SLLC) is the primary academic unit devoted to instruction and research in the world's languages, literatures, cinema, and cultures. It consists of the Departments of Arabic, East Asian Languages and Cultures, French and Italian, German Studies, Persian, Russian, and Spanish and Portuguese, as well as the Cinema and Media Studies and Second Language Acquisition programs. It offers undergraduate majors in Arabic Studies, Chinese, Cinema and Media Studies, French Language and Literature, German Studies, Italian Studies, Japanese, Persian Studies, Romance Languages, Russian Language and Literature, and Spanish Language, Literatures, and Cultures. Minors can be earned in Arabic, Chinese Language, French Studies, German Language and Literatures, Hebrew, Italian Language and Culture, Japanese, Korean Studies, Persian Studies, Portuguese and Brazilian Studies, Russian Studies, Spanish Literature, Linguistics, and Culture, Spanish Language, Culture, and Professional Contexts, and Spanish Heritage Language and Latina/o Culture. The SLLC is also the home of the Persian Flagship Program, Project GO, and Summer Institutes in Arabic, Korean, and Persian. The SLLC offers education abroad programs in many countries, both short and long-term. Its Language House, a residential immersion facility for approximately 100 students, is the oldest and one of the most successful living-learning programs on campus, offering immersion experiences in Arabic, Chinese, French, German, Hebrew, Italian, Japanese, Persian, Russian, and Spanish.

In all SLLC programs, language acquisition courses must be taken sequentially. Once credit has been received in a higher-level language acquisition course, a lower-level course may not be taken for credit. (There may be special circumstances related to particular education abroad programs; please communicate with your SLLC program advisor for additional information.)

## PROGRAMS


- Arabic Studies (p. 207)
  - Arabic Minor (p. 207)
  - Arabic Studies Major (p. 208)
- Chinese (p. 209)
  - Chinese Language Minor (p. 209)
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- French Language and Literature (p. 213)
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  - German Studies Major (p. 216)
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- Persian Studies (p. 223)
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- Spanish Language, Literatures, and Culture (p. 231)
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  - Spanish Heritage Language and Latina/o Culture Minor (p. 233)

- Spanish Language, Culture, and Professional Contexts Minor (p. 234)
- Spanish Literature, Linguistics, and Culture Minor (p. 235)

## ADVISING

Departments and programs within the School of Languages, Literatures, and Cultures provide a dedicated advisor for all students interested in studying within their unit. See the program entries in this catalog or http://sllc.umd.edu for names and contact information.

## OPPORTUNITIES

### Undergraduate Research Experiences

SLLC undergraduates are invited to participate in the annual SLLC research forum and award ceremony, an April celebration of inquiry and achievement in the areas of languages, literatures, cinema, and cultures.

### Honors Programs

Departmental honors options are available for students pursuing a B.A. in French Language and Literature, Germanic Studies, or Spanish Language, Culture, and Literature.

### Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers a variety of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

### Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus, and/or national scholarships and/or academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

# Arabic Studies

**College of Arts and Humanities**
3125 Jiménez Hall
Phone: 301-405-4025
http://sllc.umd.edu/arabic/

Arabic Studies at the University of Maryland offers a multidimensional education in Arabic language and culture, tailored for diverse populations of students, while also preparing them for a variety of careers on the global market. The Arabic Department's vision centers on rigorous language instruction that integrates dialects with the formal register of Arabic (*fusHa*) and on developing a nuanced cultural knowledge through a variety of courses that interrogate different aspects of culture and society in the Arabic-speaking world. The Arabic Department offers a B.A. and Minor in Arabic.

The Arabic and Persian Departments jointly host the UMD Summer Language Institute (https://sllc.umd.edu/special-programs/arabic-persian/summer-langage-institutes/arabic/), which offers an intensive language and culture program. Students participating in the Summer Institute are able to complete a full language level/academic year of Arabic. Three levels are offered in the summer: elementary, intermediate, and advanced.

Additionally, the School of Languages, Literatures, and Cultures operates the Language House, including an Arabic cluster, where students live and learn in a semi-immersive environment.

## PROGRAMS

### Major

- Arabic Studies Major (p. 208)

### Minor

- Arabic Minor (p. 207)

## ADVISING

**Advisor:** Ahmed Hanafy, ahmeda@umd.edu

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

## OPPORTUNITIES

### Summer Institute

The University of Maryland's School of Languages, Literatures, and Cultures (SLLC) Summer Language Institute offers language and culture programs for Beginner, Intermediate, and Advanced students of Arabic and Persian. Visit the UMD Summer Language Institute website (https://sllc.umd.edu/special-programs/arabic-persian/summer-langage-institutes/arabic/) to learn more.

### Internships

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information, see the SLLC website: http://sllc.umd.edu.

### Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers a variety of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# Arabic Minor

**Program Director:** Peter Glanville, Ph.D.

The minor in Arabic (21 credits) provides an in-depth understanding of Arabic language and Arab culture and society. Building on an introductory grounding on both Modern Standard Arabic and a regional variety of Arabic, students may concentrate on language, culture, or a combination of both.

Students interested in pursuing the minor in Arabic should contact the undergraduate advisor, who will be responsible for oversight and record keeping. Students should declare the minor in Arabic at least one year prior to graduation.

To make an appointment to explore or declare a minor, go to: http://arhu.umd.edu/academics/undergraduate-studies/minors/.

## REQUIREMENTS

*No prerequisites are required for students with equivalent knowledge. Placement testing is mandatory.*

*All prerequisites imply "or equivalent knowledge."*

| Course | Title | Credits |
|---|---|---|
| **Courses required for Minor** | | |
| ARAB101 | Elementary Arabic I | 3 |
| ARAB102 | Elementary Arabic II | 3 |
| ARAB201 | Intermediate Arabic I | 3 |
| ARAB202 | Intermediate Arabic II | 3 |
| 9 additional credits of 3xx or 4xx level courses, including at least one taught in Arabic [1] | | 9 |
| **Total Credits** | | **21** |

[1] Contact the minor advisor for approved courses

**Notes:**

- Once credits have been received for a higher-level language focus course, a lower-level course in the same strand may not be taken for credit. (For example, ARAB201 may not be taken after ARAB202).
- In cases where a student has equivalent knowledge, required courses are replaced in consultation with minor advisor. All courses applied to the minor must be taught in Arabic.
- Students who begin their study with prior exposure to the language at home or in school must seek the advice and written permission of the advisor before choosing the courses they will use to replace any required minor courses.
- A maximum of 6 credits can be applied to the minor from courses taken at other institutions. No more than 6 credits of the minor may be used to satisfy the requirements of a major. No courses in the minor may count toward another minor.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.

# Arabic Studies Major

**Program Director:** Peter Glanville, Ph.D.

The 36-credit major in Arabic Studies (ARAB) prepares students to engage with the rich diversity of the Arabic-speaking world through comprehensive studies in language and culture. The major provides students with extensive linguistic training in both formal Arabic and at least one regional variety. An interdisciplinary curriculum acquaints students with global perspectives on social issues, cultural trends, and forms of difference across Arab societies and the diaspora. The program prepares students for a range of careers in fields like government, education, business, international development, communication, and the arts. Many undergraduates combine Arabic Studies with a double major in another discipline, including arts and humanities majors, international relations, business, computer science, and journalism.

## Placement in Courses

For information about the World Language Placement, go to: http://arhu.umd.edu/academics/world-language-placement/.

## Program Learning Outcomes

1. Students will be able to interact at the Advanced level of proficiency in a way that mirrors speech-community norms in a variety of non-specialist contexts.
2. Students will demonstrate comprehension of authentic written and oral texts intended for a native-speaker audience, including news articles, editorials, and literary texts.
3. Students will produce written texts in Modern Standard Arabic at the advanced level of proficiency.
4. Students will demonstrate an understanding of key issues in the Arabic-speaking world and the ability to research a topic in depth through critical, cross-cultural analysis at a level appropriate to an area specialist. Students will explain how different perspectives and experiences influence practices and beliefs in other cultures as well as their own at individual, organizational, and societal levels.
5. Students will demonstrate familiarity with the rich ethnic, religious, and linguistic diversity of the Arabic-speaking world.
6. Students will describe various forms of marginalization in the Arabic-speaking world, the power structures that support them, and the lived experiences that arise from them. Students will compare these to similar processes in other cultural contexts, including their own.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Core Language Sequence (18 Credits)** | | |
| ARAB101 | Elementary Arabic I | 3 |
| ARAB102 | Elementary Arabic II | 3 |
| ARAB201 | Intermediate Arabic I | 3 |
| ARAB202 | Intermediate Arabic II | 3 |
| ARAB301 | Arab Culture and Society: Skills and Topics I | 3 |
| ARAB302 | Arab Culture & Society: Skills and Topics II | 3 |
| **Elective Credits (see below for details)** | | **18** |
| **Total Credits** | | **36** |

- Once credits have been received for a higher-level language focus course, a lower-level course in the same strand may not be taken for credit. ARAB201 may not be taken after ARAB202, for example.
- All pre-requisites imply "or equivalent knowledge." In cases of equivalent knowledge, required language-focused credits are replaced in consultation with, and with the written approval of, the undergraduate advisor.
- Students must take a minimum of 12 major credits at the upper level.

### Foundation Electives (a minimum of 9 credits)

| Course | Title | Credits |
|---|---|---|
| ARAB190 | Introduction to Arab Cultures & Societies | 3 |
| ARAB317 | Key Moments in the History of the Middle East | 3 |
| ARAB222 | Arabic for Daily Life I | 3 |
| ARAB322 | Arabic for Daily Life II | 3 |

| | | |
|---|---|---|
| ARAB225 | Roots and Patterns: Verb Meaning in Arabic | 3 |
| ARAB325 | Structure and Function of the Arabic Language | 3 |

- Other ARAB courses may be included on written approval of the undergraduate advisor.
- Students may select all 18 elective credits from the foundational electives category above, but they may take up to 9 credits of optional electives from the list below (if optional electives are taken, at least one 3-credit optional elective must be taught in Arabic).

### Optional Electives (a maximum of 9 credits, including at least one 3-credit course taught in Arabic)

| Course | Title | Credits |
|---|---|---|
| ARAB206 | Egyptian Colloquial Arabic I | 3 |
| ARAB207 | Egyptian Colloquial Arabic II | 3 |
| ARAB250 | Food Cultures in the Global Middle East | 3 |
| ARAB398 | Special Topics in Arabic Studies | 3 |
| ARAB401 | Readings in Arabic Literature | 3 |
| ARAB410 | Ideology of Stereotyping: American and Middle Eastern Film and Television | 3 |
| ARAB499 | Special Topics in Arabic Studies | 3 |
| ARAB386 | Experiential Learning | 3-6 |

- Certain courses in Middle Eastern Studies taught in English in other departments (depending on the content of the courses) can be substituted with the approval of the Undergraduate Advisor and Program Director.
- Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

## GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

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- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Chinese

**College of Arts and Humanities**
2106 Jiménez Hall
Phone: 301-405-4025
mlzhou@umd.edu
http://sllc.umd.edu/chinese/

**Undergraduate Program Director:** Minglang Zhou, Ph.D.

The Department of East Asian Languages and Cultures (EALC) promotes a broad knowledge of and deep engagement with the languages, literatures, and cultures of China, Japan and Korea. We emphasize the common inheritance and enduring legacies of these countries, as well as the varied experiences of diverse groups within their ever-changing societies and communities. EALC offers BA programs in Chinese and Japanese and minors in all three.

## PROGRAMS

### Major

- Chinese Major (p. 210)

### Minor

- Chinese Language Minor (p. 209)

## ADVISING

**Advisor:** Dr. Gloria Hu, ghu@umd.edu

To review the academic plan for this major, go to http://arhu.umd.edu/undergraduate/advising/academicplans/.

## OPPORTUNITIES

### Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding Juniors and/or Seniors to display their research projects. The Forum takes place in late April in the Language House (St. Mary's).

### Internships

#### Annual Language Career and Internship Fair

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information see the SLLC website: http://sllc.umd.edu.

### Student Societies and Professional Organizations

Individual SLLC departments hold annual induction ceremonies for students who are eligible for honor society membership.

### Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers a variety of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

### Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

# Chinese Language Minor

**School of Languages, Literatures, and Cultures (SLLC)**
http://sllc.umd.edu/chinese/

**Program Director:** Minglang Zhou, Ph.D.

The 15-credit minor in the Chinese language will provide students with a sophisticated understanding of Chinese linguistic knowledge and intermediate-level Chinese language skill. Students attempting this minor will need a strong background in Chinese at the level of CHIN101 and CHIN102/CHIN103, which are prerequisites for some of the required courses. This minor will be of particular relevance to students with a broad interest in learning the Chinese language. Students interested in taking this minor program should contact the Chinese advisor in the Department of East Asian Languages and Cultures.

To make an appointment to explore or declare a minor, go to: http://arhu.umd.edu/academics/undergraduate-studies/minors/.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| Select four of the following language courses: | | 12 |
| CHIN201 | Intermediate Spoken Chinese I | |
| CHIN202 | Intermediate Written Chinese I | |
| CHIN203 | Intermediate Spoken Chinese II | |
| CHIN204 | Intermediate Written Chinese II | |
| CHIN205 | Intermediate Chinese - Accelerated Track | |
| CHIN301 | Advanced Chinese I | |
| CHIN302 | Advanced Chinese II | |
| CHIN305 | Life in China through TV Plays I | |
| CHIN306 | Life in China through TV Plays II | |
| CHIN321 | | |
| CHIN322 | | |
| CHIN401 | Readings in Modern Chinese I | |
| CHIN402 | Readings in Modern Chinese II | |
| CHIN408 | Selected Readings in Classical Chinese | |
| CHIN411 | Business Chinese I | |
| CHIN412 | | |
| CHIN415 | Readings in Current Newspapers and Periodicals | |
| Select one of the following linguistics-oriented courses: | | 3 |
| CHIN307 | Linguistic Landscape of China | |
| CHIN422 | | |
| CHIN428 | Selected Topics in Chinese Linguistics | |
| **Total Credits** | | **15** |

- Students must receive a "C-" or better in all courses used for the minor. Of the 15 credits, 9 must be 300 or 400 level courses.
- An overall GPA of 2.0 in the minor is required for graduation.
- No more than 6 of the 15 credits toward the minor may be taken at an institution other than UMCP.

# Chinese Major

**Program Director:** Minglang Zhou, Ph.D.

The Chinese major (CHIN) provides the training and cultural background needed for entering East Asia-related careers in such fields as higher education, the arts, business, government, international relations, agriculture, or the media. Students may also consider a double major in Chinese and another discipline such as business, government and politics, economics, or journalism. Chinese students have the option of applying to live in St. Mary's Hall (Language House) and participating in a study abroad program.

## Placement in Courses

For information about the World Language Placement, go to: http://arhu.umd.edu/academics/world-language-placement/.

## Program Learning Outcomes

1. Linguistically, students will reach Intermediate-High to Advanced-Low, as measured by ACTFL (American Council on the Teaching of Foreign Languages) standards, in speaking, listening, reading, and writing Mandarin Chinese.
2. Students will demonstrate a good understanding of the development of Modern Chinese in the 20th and 21st centuries.
3. Students will demonstrate a good understanding of the historical relationship between Modern Standard Chinese and Chinese dialects.
4. Students will demonstrate a good understanding of the characteristics of the Chinese writing system
5. Students will demonstrate a good understanding of the relationship between Chinese and minority languages spoken in China.
6. Literarily and culturally, students will demonstrate critical and close reading skills of classical and modern Chinese literature.
7. Students will demonstrate a good understanding of the inherent relationships between life, society, and fictional representation.
8. Students will demonstrate familiarity with representative works of contemporary Chinese literature and cinema.
9. Students will demonstrate a good understanding of the ability to see how art interacts with, and provides unique perspectives on politics, history, and society at large.

## REQUIREMENTS

The Chinese major requires 39 credits: 18 of language and 18 of non-language electives, as described below.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Language Requirements** | | |
| Select 18 credits of Chinese Language at 2xx level or above: [1] | | 18 |
| CHIN201 & CHIN202 | Intermediate Spoken Chinese I and Intermediate Written Chinese I (must be taken and passed together) | |
| CHIN203 & CHIN204 | Intermediate Spoken Chinese II and Intermediate Written Chinese II (must be taken together and passed together) | |
| CHIN301 | Advanced Chinese I | |
| CHIN302 | Advanced Chinese II | |
| CHIN305 | Life in China through TV Plays I | |
| CHIN306 | Life in China through TV Plays II | |
| CHIN401 | Readings in Modern Chinese I | |
| CHIN402 | Readings in Modern Chinese II | |
| CHIN415 | Readings in Current Newspapers and Periodicals | |
| **Literature** | | |
| Select 3 credits of Chinese Literature electives at 3xx level or above: | | 3 |
| CHIN313 | Chinese Poetry and Prose in Translation | |
| CHIN315 | Modern Chinese Literature in Translation | |
| CHIN388 | Topics in Chinese Literature in Translation | |

| | | |
|---|---|---|
| CHIN418 | Special Topics in Contemporary Chinese Fiction and Film | |
| CHIN441 | Traditional Chinese Fiction | |
| CHIN443 | Cultural Histories of Medicine in China | |
| **Linguistics** | | |
| CHIN307 | Linguistic Landscape of China | 3 |
| Select 3 credits of Chinese Linguistics at 3xx level or above: | | 3 |
| CHIN422 | | |
| CHIN428 | Selected Topics in Chinese Linguistics | |
| EALL300 | The Languages of East Asia | |
| **History/Civilization** | | |
| Select 6 credits of Chinese history/civilization offered by other departments. Courses accepted include, but are not limited to: | | 6 |
| HIST284 | East Asian Civilization I | |
| HIST285 | East Asian Civilization II | |
| HIST481 | A History of Modern China | |
| **Electives** | | |
| Select 6 credits of electives at 3xx level or above, subject to the advisor's approval [2] | | 6 |
| CHIN331 | Chinese Calligraphy: Theory and Practice | |
| CHIN332 | Chinese Culture through Traditional Chinese Arts | |
| CHIN369 | Special Topics in Study Abroad III | |
| CHIN408 | Selected Readings in Classical Chinese | |
| CHIN429 | Selected Topics in Chinese Studies | |
| **Total Credits** | | **39** |

1 Students placing into the program at higher levels should reach at least the level of CHIN302 or CHIN306 but may substitute non-language courses on China-related subjects for some of these 18 credits. (The final decision on what substitute courses may be used for the major rests with the Chinese Program and Chinese Advisor.)

2 In addition to all the specific courses listed under "Non-language Requirements" above, language courses and independent study may also be used toward this requirement.

"Special Topics" and "Colloquium" courses (those with variable numbers, ending in 8 or 9 and followed by a letter) may be acceptable depending on the actual title and content of the course at the time it is offered. The final determination is in the hands of the Chinese Program and the Chinese advisor.

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

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- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# OPPORTUNITIES

## Study Abroad

For information on study abroad programs see the program advisor and/or the Education Abroad website http://globalmaryland.umd.edu/offices/education-abroad/.

# Cinema and Media Studies Major (SLLC)

**College of Arts and Humanities**
3212 Jiménez Hall
Phone: 301-405-4025
umdfilm@umd.edu
http://film.umd.edu

**Program Director:** Caroline Eades, Ph.D.

Cinema and Media Studies is an interdisciplinary program in the humanities that enables students to explore an influential global art form in its aesthetic, cultural, economic, historical, and technological dimensions. The major takes a critical, textual approach to film, emphasizing scholarly viewing, interpreting, and writing about moving images. It provides students with a solid background in theoretical, critical, and aesthetic aspects of the study of film, including the history of the medium and the analysis of national cinemas, always keeping in view questions of how new media have changed both cinema itself and the study of cinema. The Cinema and Media Studies major brings together courses in cinema from varied nations, languages, and cultures and challenges students to understand the systems of transnational exchange that have characterized this medium from its inception.

Courses offered by this program may be found under the following acronyms: FILM (being phased out), CINE, ENGL, and SLLC.

## Program Objectives

The major in Cinema and Media Studies teaches the fundamental skills required for a range of professional careers: critical thinking, historical awareness, research, information management, cogent development of ideas, and strong written and oral communication. Students will work toward competence in film and media analysis, critical viewing and writing, and visual literacy at a time when our culture is becoming increasingly dependent upon visual communication.

## Program Learning Outcomes

1. Students will be able to analyze and interpret film aesthetics and technical structures of editing, cinematography, sound, and mise-en-scene.
2. Students will be able to identify and analyze diverse genres and movements in the history of film.
3. Students will be able to situate films produced in various parts of the world in relation to larger historical and cultural developments.
4. Students will understand the various uses of the moving image in its relation to the political, economic, and social history of the world over the past century.
5. Students will be able to conduct research in Cinema and Media Studies and to write persuasively.

# REQUIREMENTS

The Cinema and Media Studies major has four parts: a prerequisite course in Film Form (ENGL245/CINE245), a two-course Film History and Theory Foundation (CINE301 and CINE302), a six-course Film Criticism Core, and four Film Electives. The first two parts of the program assure that students have the necessary analytical tools and historical background to interpret diverse global cinematic traditions. The Film Criticism Core and Film Electives offer students the opportunity to explore genres, themes, and movements across different historical periods and to develop their skills in analysis, writing, and research.

## General Policies

- The Cinema and Media Studies major requires 39 credits (13 courses).
- A grade of "C-" or better is required in each of the courses making up the 39 credits of the major.
- Up to nine (9) credits may be taken at the 2xx-level.
- At least 6 of the 39 credits must be at the 4xx-level.

The Cinema and Media Studies major requires 39 credits, distributed as follows:

| Course | Title | Credits |
|---|---|---|
| **Film Form** | | |
| CINE/ENGL245 | Film Form and Culture | 3 |
| Equivalent by permission of department | | |
| **Film History and Theory Foundation** [2] | | |
| CINE301 | Cinema History I: The Silent Era | 3 |
| CINE302 | Cinema History II: The Sound Era | 3 |
| **Film Criticism Core Requirement** [3] | | |
| Select one course in Film Theories | | 3 |
| Select two courses in Genres/Auteurs/Movements | | 6 |
| Select two courses in National and International Cinemas | | 6 |
| Select one course in Documentary, Animation, Experimental Cinema or other Visual Media | | 3 |
| **Film Electives** [4] | | |
| Select an option: | | 12 |
| Option One: | | |
| Select two courses from the Film Criticism category, any rubric | | |
| Select two courses from the Film Electives category | | |
| Option Two: | | |
| Select four courses in Film Electives that create a coherent emphasis [5] | | |
| **Total Credits** | | **39** |

1. Fulfills Gen Ed req. in Humanities. Cinema and Media Studies majors must take ENGL245/CINE245 before they take other 3xx or 4xx-level Cinema and Media Studies courses. We recommend that it be taken no later than sophomore year.
2. Students may take the two courses in any order.
3. At least one course in this category must be taken at the 4xx-level. For a list of courses that will satisfy each sub-category, please see https://sllc.umd.edu/fields/cinema-media/courses/.
4. Up to two courses in this category may be taken at the 2xx-level. At least one must be taken at the 4xx-level. Please consult the full list of courses accepted for the major: https://sllc.umd.edu/fields/cinema-media/courses/.
5. The four courses should be selected in consultation with the Cinema and Media Studies Advisor to allow students to explore a specific area of interest or an area related to their future academic or professional plans.

## Other Requirements for the Major

CINE245 is a prerequisite for many 3xx-level courses in the major. Students are advised to complete that course early in their academic careers. Successful completion of CINE245 allows students to proceed to two courses required for the major: CINE301 and CINE302.

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# ADVISING

Academic advising is available throughout the year. Departmental academic advising is mandatory for all Cinema and Media Studies majors before registration for classes. Students should check Testudo (http://testudo.umd.edu) for their registration date and schedule an advising appointment for at least one week in advance of their date. Advising appointments can be made via email: filmadvising@umd.edu.

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

# OPPORTUNITIES

## Internships

Cinema and Media Studies offers students the opportunity to earn academic credit in connection with an internship, through CINE388 (Experiential Learning). Admission to CINE388 is by application only. See http://film.umd.edu for more details.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# East Asian Studies Certificate (SLLC)

**College of Arts and Humanities**
2106C Jimenez Hall
Phone: 301-405-2855
mlzhou@umd.edu
http://ceas.umd.edu/#certificate/

**Program Director:** Minglang Zhou, Ph.D.

The Undergraduate Certificate in East Asian Studies is a 24-credit course of instruction designed to provide specialized knowledge of the cultures, histories, and contemporary concerns of the peoples of China, Japan, and Korea. It will complement and enrich a student's major. The curriculum focuses on language instruction, civilization courses, and electives in several departments and programs of the university. It is designed specifically for students who wish to expand their knowledge of East Asia and demonstrate to prospective employers, the public, and graduate and professional schools a special competence and set of skills in East Asian affairs.

Upon satisfactory completion of the courses, with a grade of "C-" or better in each course, and recommendation by the Coordinator of the Certificate Program, a certificate will be awarded. Beginning with Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.0) cumulative grade point average across all courses used to satisfy undergraduate certificate requirements. A notation of the award of the certificate will be included on the student's transcript. The student must have a bachelor's degree awarded by Maryland (must be College Park campus) previous to or simultaneously with an award of the certificate.

## Core Values of the Program

- Vision: See the U.S. and East Asia as parts of one globalized world with cultural varieties.
- Knowledge: Acquire language skills, spatial and chronological thinking skills, and creative prowess through interdisciplinary study.
- Integrity: Adhere to the University's Code of Academic Integrity and professional ethics.

The Certificate will equip students to develop successful careers through teaching excellence and study abroad programs.

Interested students should contact the Coordinator of the Certificate Program, Dr. Minglang Zhou, Department of East Asian Languages and Cultures, 2106C Jimenez Hall, mlzhou@umd.edu (website at http://ceas.umd.edu/#certificate/).

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| HIST284 | East Asian Civilization I | 3 |
| HIST285 | East Asian Civilization II | 3 |
| Six semester hours of introduction to one of the following East Asian languages: [1] | | 6 |
| CHINESE: | CHIN101 | |
| JAPANESE: | JAPN101 | |
| KOREAN: | Elementary Korean (KORA101 & KORA102) | |
| Complete at least 12 hours of electives selected from four regular approved courses on East Asia in such disciplines as: | | 12 |
| Art History | | |
| Business | | |
| Ethnomusicology | | |
| Government and Politics | | |
| History | | |
| Language, Linguistics, and Literature | | |
| Music | | |
| Plant Science and Landscape Architecture | | |
| Sociology | | |
| Women's Studies | | |
| **Total Credits** | | **24** |

[1] Students with language competence equivalent to these language courses are exempted from the language requirement; such students are required to complete an additional six hours of electives in East Asian courses to fulfill the 24-credit requirement for the certificate.

## Additional Requirements

- An overall GPA of 2.0 in the certificate is required for graduation.
- Nine of the 12 hours of electives must be upper division (3xx-4xx level courses).
- A maximum of three credit hours of special topics courses on East Asia will be allowed with the approval of the certificate coordinator.
- No more than nine credits from any one department or from the student's major may be applied toward the certificate.
- No more than nine credits of the courses applied toward the certificate may be transferred from other institutions.
- Students are asked to work with the coordinator in ensuring that the electives maintain an intercollegiate and interdisciplinary focus (at least three disciplines are recommended), as well as a regional distribution to reflect the countries of East Asia. Ideally, students will select electives that, taken together, include China, Japan, and Korea.

# French Language and Literature

**College of Arts and Humanities**
3106 Jiménez Hall
Phone: 301-405-4025
http://sllc.umd.edu/french/

The Department of French and Italian offers French language instruction at the elementary and intermediate levels, as well as advanced courses in Francophone and French literature, French linguistics, and French and Francophone cultures, cinemas, and societies. Programs offered by the department include a Bachelor of Arts in French language and literature, a Master of Arts in French Studies, and a Ph.D. in Modern French Studies. Faculty expertise encompasses many fields from the Renaissance to the present. Students are strongly encouraged to take advantage of the study abroad programs in Montpellier (short summer program) and Nice (semester or year-long program), taught and administered by the department's faculty. The department sponsors activities during annual events such as National French Week, *le mois de la Francophonie*, and Senior Celebration, as well as activities throughout the year in partnership with the student-run French Language Organization and the French Cluster of the Language House.

## PROGRAMS

### Major

- French Language and Literature Major (p. 214)

### Minor

- French Studies Minor (p. 215)

## ADVISING

**Advisor:** Dr. Hannah Wegmann, hwegmann@umd.edu

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

# OPPORTUNITIES

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers a variety of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Study Abroad

The Maryland-in-Nice program is one of the University of Maryland's oldest study abroad programs. Depending on placement, students studying for a semester in the program Maryland-in-Nice may earn up to 18 credits toward the completion of the major; students studying in Nice for the academic year may earn up to 33 credits. The department also administers a three-week intensive course in Montpellier (France). For information on study abroad programs, please see the program advisor and/or the Education Abroad website: http://globalmaryland.umd.edu/offices/education-abroad/.

## Language House

The French Cluster at the Language House Immersion Program is a living-learning community that promotes language learning and cultural competency through casual daily communication in French. Guided by a native speaker of French, students make a commitment to speak only in French with their housemates and participate in diverse creative activities. For information on the Language House Immersion Program, please see the program website: http://sllc.umd.edu/language-house/.

## Language Partner Program

SLLC-ISSS Language Partner Program (LPP) offers majors in any SLLC program at UMD the opportunity to meet with international students outside the classroom and practice their target language in an informal yet structured way. Language Partners (LPPs) meet on a regular basis at least once a week for one hour of conversation. For information on the Language Partner Program, please see the program website: http://globalmaryland.umd.edu/offices/international-students-scholar-services/sllc-isss-ea-language-partner-program/.

## Honors Program

For information, see: http://sllc.umd.edu/fields/french/undergraduate/.

## Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding Juniors and/or Seniors to display their research projects. The Forum takes place in late April in the Language House (St. Mary's).

## Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

## Internships

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information, see the SLLC website: http://sllc.umd.edu.

# French Language and Literature Major

**Program Director:** Hervé-Thomas Campangne, Ph.D.

The undergraduate major in French (FREN) is centered on the study of the French language and the literatures and cultures of the French and Francophone people. Our faculty members teach a wide variety of courses in culture, literature, linguistics, stylistics, cinema, civilization, the contemporary French and Francophone world, and women's studies.

Students who complete the requirements for the major can expect to be able to speak, read, write, and understand French at a level that would allow them to communicate with native speakers, to recognize and interpret the diverse cultural perspectives and products of the French-speaking world, and to be culturally sensitive members of society.

Students of French have the option of living in the Language House. University faculty-led programs in Nice (semester or year-long) and Montpellier (summer) are offered by the Department, and all students majoring in French are encouraged to participate in either, or both, of these programs as an integral part of their curriculum. Students may also consider a double major in French and another discipline, such as College of Arts and Humanities majors, Business, International relations, Economics, or Journalism.

Students can satisfy the ARHU Global Engagement Requirement by taking the appropriate French language course sequence (103>203), or by taking a higher level French course.

Students must take language acquisition courses sequentially, i.e., 103, 203, 204, 250, etc. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit. FREN387 must be taken before any 400 level course taught in French.

Advanced students of French may substitute 3xx or 4xx level electives for FREN204, FREN250, or FREN301, in consultation with the Advisor.

## Placement in Courses

For information about the World Language Placement, go to: http://arhu.umd.edu/academics/world-language-placement/.

## Program Learning Outcomes

1. Demonstrate knowledge of the institutions, values, and cultural products of France and/or the francophone countries
2. Demonstrate proficiency in oral expression in French
3. Demonstrate proficiency in written expression in French
4. Demonstrate reading literacy in French

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| FREN204 | French Grammar and Composition | 3 |

| | | |
|---|---|---|
| FREN250 | Introduction to Cultural and Textual Analysis | 3 |
| FREN301 | Composition and Style | 3 |
| FREN387 | Critical Writing on France and the French-Speaking World | 3 |
| Select two of the following: | | 6 |
| FREN302 | Introduction to Translation | |
| FREN306 | Commercial French I | |
| FREN312 | France Today | |
| FREN313 | (Current Issues in the French-Speaking World) | |
| FREN399 | Directed Study in French | |
| FREN351 | From Romanticism to the Age of Modernism and Beyond | 3 |
| FREN352 | From the Age of Epic and Romance to the Enlightenment | 3 |
| Select four additional FREN4xx level courses in literature, linguistics, film, and culture, of which only one may be in English. FREN387 must be completed before any FREN4xx level course offered in French. | | 12 |
| **Total Credits** | | **36** |

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# OPPORTUNITIES

## Study Abroad

The Maryland-in-Nice program is one of the University of Maryland's oldest study abroad programs. Depending on placement, students studying for a semester in the program Maryland-in-Nice may earn up to 18 credits toward the completion of the major; students studying in Nice for the academic year may earn up to 33 credits. The department also administers a three-week intensive course in Montpellier (France). For information on study abroad programs, please see the program advisor and/or the Education Abroad website: http://globalmaryland.umd.edu/offices/education-abroad/.

## Language House

The French Cluster at the Language House Immersion Program is a living-learning community that promotes language learning and cultural competency through casual daily communication in French. Guided by a native speaker of French, students make a commitment to speak only in French with their housemates and participate in diverse creative activities. For information on the Language House Immersion Program, please see the program website: http://sllc.umd.edu/language-house/.

## Language Partner Program

SLLC-ISSS Language Partner Program (LPP) offers majors in any SLLC program at UMD the opportunity to meet with international students outside the classroom and practice their target language in an informal yet structured way. Language Partners (LPPs) meet on a regular basis at least once a week for one hour of conversation. For information on the Language Partner Program, please see the program website: http://globalmaryland.umd.edu/offices/international-students-scholar-services/sllc-isss-ea-language-partner-program/.

# French Studies Minor

**School of Languages, Literatures, and Cultures (SLLC)**
http://sllc.umd.edu/french/

**Program Director:** Hervé-Thomas Campangne, Ph.D.

This 21-credit minor will provide students with a solid overview of linguistic, cultural, and literary aspects of the study of French.

To make an appointment to explore or declare a minor, go to http://arhu.umd.edu/academics/undergraduate-studies/minors/.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Courses required for the minor, in this order, are:** | | |
| FREN204 | French Grammar and Composition | 3 |
| FREN250 | Introduction to Cultural and Textual Analysis | 3 |
| FREN301 | Composition and Style | 3 |
| FREN387 | Critical Writing on France and the French-Speaking World | 3 |
| Select three of the following: [1] | | 9 |
| FREN302 | Introduction to Translation | |
| or FREN303 | Translation: English to French | |
| FREN311 | Advanced Oral Expression | |
| or FREN312 | France Today | |
| FREN351 | From Romanticism to the Age of Modernism and Beyond | |
| FREN352 | From the Age of Epic and Romance to the Enlightenment | |
| Any 4XX-level course/s [1] | | |
| **Total Credits** | | **21** |

[1] Starting in Fall 2013 one 4xx-level elective is required for completion of the minor in French studies.

- All courses must be in French.
- A maximum of six (6) credits can be applied to the minor from courses taken at other institutions, with the exception of Maryland in Nice, which allows the transfer of nine (9) credits.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- Students who matriculated in Fall 2012 or later must earn a cumulative GPA of 2.0 within their minor in order to graduate.
- Students who begin their study as native/fluent speakers should seek the advice of the advisor before choosing the courses they will use to replace the core minor courses.

# German Studies

**College of Arts and Humanities**
3215 Jiménez Hall
Phone: 301-405-4025
http://sllc.umd.edu/german/

We offer German language instruction at the elementary and intermediate levels, as well as advanced courses in German-language literature, culture, and film. Our curriculum also includes English-language courses focusing on the cultures of the German-speaking world, including popular classes on Grimms' Fairy Tales and German Cinema. Faculty expertise includes German literature and culture from the 18th through the 21st centuries, film studies, gender studies, postcolonial studies, and digital humanities. We strongly encourage our students to study abroad at one of our partner universities. Our students participate in a wide-range of programs and activities sponsored by the department, including the German Club, the National Honor Society Delta Phi Alpha, and events sponsored by the German Cluster of the Language House. Many of our graduates go on to win prestigious fellowships through organizations such as Fulbright and the Congress-Bundestag Youth Exchange.

# PROGRAMS

## Major

- German Studies Major (p. 216)

## Minor

- German Studies Minor (p. 217)

# ADVISING

**Advisor:** Dr. Regina Haag, haag@umd.edu

To review the academic plan for this major, go to http://arhu.umd.edu/undergraduate/advising/academicplans/.

# OPPORTUNITIES

## Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding juniors and/or seniors to display their research projects. The forum takes place in late April in the Language House (St. Mary's).

## Internships

### Annual Language Career and Internship Fair

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information, see the SLLC website: http://sllc.umd.edu.

## Honors Program

For information, see http://sllc.umd.edu/fields/german/undergraduate/honors/.

## Student Societies and Professional Organizations

Individual SLLC departments hold annual induction ceremonies for students who are eligible for honor society membership.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers a variety of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

# German Studies Major

**Notice of Addendum:** learning outcomes were updated effective Spring 2025 and have been published on ADDENDA TO THIS CATALOG (https://academiccatalog.umd.edu/undergraduate/addenda/#german-studies-major).

**School of Languages, Literatures, and Cultures (SLLC)**
http://sllc.umd.edu/german/

**Program Director:** Josh Alvizu, Ph.D.

The 36-credit BA in German Studies is centered on the study of the German language as well as the literatures and cultures of German-speaking peoples. Students who complete the requirements for the major can expect to be able to speak, read, write, and understand German at a level that would allow them to communicate with native speakers. Additionally, students will be able to recognize and interpret the diverse cultural perspectives and products of the German-speaking world, in order to be culturally sensitive members of society.

## Placement in Courses

For information about the World Language Placement, go to: http://arhu.umd.edu/academics/world-language-placement/.

## Program Learning Outcomes

1. Students will be able to communicate effectively in writing in German by demonstrating accuracy in use of grammatical structures, using appropriate linguistic register, formulating persuasive arguments supported with appropriate textual evidence and incorporating secondary literature.
2. Students will be able to critically interpret written texts in a variety of genres (literature, realia, correspondence, newspaper and magazine articles, poems, dramas, etc.) and demonstrate knowledge of literary concepts.
3. Students will be able to communicate effectively in spoken German, demonstrating accuracy in use of grammatical structures, using appropriate linguistic register, and demonstrating a fluency in speaking that includes pronunciation that does not interfere with communication.

4. Students will be able to demonstrate knowledge of the institutions, values, and cultural products of Germany and/or the German-speaking world.

# REQUIREMENTS

**Notice of Addendum:** requirements for this program were updated effective Spring 2025 and have been published on ADDENDA TO THIS CATALOG (https://academiccatalog.umd.edu/undergraduate/addenda/#german-studies-major).

**Prerequisite: 8 credits:** GERS103 and GERS203 or equivalent

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Core Language Sequence** | | |
| GERS204 | German Grammar Review | 3 |
| GERS301 | Conversation and Composition I: The German-Speaking World | 3 |
| GERS302 | Conversation and Composition II: Current Topics in German-Speaking Society | 3 |
| **Area Requirements** [1] | | |
| Select a minimum of 6 credits of the following language courses: | | 6 |
| GERS315 | Practicum in Translation I | |
| GERS319 | Selected Topics in German Language Studies | |
| GERS402 | Advanced Conversation and Composition | |
| GERS419 | Selected Topics in German Language Studies | |
| GERS473 | Variation in Contemporary German Language | |
| Select a minimum of 6 credits of the following literature courses: | | 6 |
| GERS320 | Survey of German Studies | |
| GERS322 | Highlights of German Literature and Culture | |
| GERS436 | The Usual Suspects: Criminals in German Literature and Film | |
| GERS439 | Selected Topics in German Literature | |
| GERS442 | Gender and Sexuality in German Literature and Society | |
| GERS443 | Literature as Cultural Discourse | |
| GERS444 | The German-Jewish Experience | |
| GERS458 | Literary or Media Genres | |
| Select a minimum of 6 credits of the following culture courses: | | 6 |
| GERS255 | Once Upon a Time: Fairy Tales of the Brothers Grimm | |
| GERS289 | Selected Topics in the Cultures of the German-Speaking Countries | |
| GERS299 | Special Topics in German Studies | |
| GERS367 | The Great Derangement: Climate, Art, and Literature | |
| GERS383 | The 'Warrior' in German Culture: From Valiant Knights to Brazen Terrorists | |
| GERS385 | German Cinema | |
| GERS389 | Topics in German Culture | |
| GERS399 | Selected Topics in German Studies | |
| GERS441 | Border Crossings and Cultural Transfers | |
| GERS449 | Selected Topics in German Studies | |
| GERS489 | Social Issues in German Culture | |
| Select three 3xx-4xx level elective courses | | 9 |
| **Total Credits** | | **36** |

1. A minimum of two 3xx or 4xx level courses in each of three areas: language, literature, and culture and 3 electives.
2. Taught in English

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

## Language of Instruction

No more than 9 credits of the 36 total required may be satisfied by courses taught in English. With the approval of the German Studies advisor, 6 of the 9 credits may be taken outside the department.

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# OPPORTUNITIES

## Internships

Internships (GERS386) are also encouraged (no more than 6 credits may be applied to the major). GERS386 may not replace the required 6 credits of 3xx or 4xx level courses in any of the three categories.

## Study Abroad

For information on study abroad programs see the program advisor and/or the Education Abroad website http://globalmaryland.umd.edu/offices/education-abroad/.

# German Studies Minor

**School of Languages, Literatures, and Cultures (SLLC)**
http://sllc.umd.edu/german/

**Program Director:** Josh Alvizu, Ph.D.

This minor will provide students with an in-depth understanding of German language and literature as a source of culture. Building on these essentials, students can concentrate on language, literature, culture, or a combination of these fields. This will be accomplished by taking 5 courses beyond GERS203 or its equivalent. Students will determine, in close consultation with the German undergraduate advisor, how to constitute their own concentration.

To make an appointment to explore or declare a minor, go to http://arhu.umd.edu/academics/undergraduate-studies/minors/.

# REQUIREMENTS

**15 credits** - 5 courses beyond GERS203 or its equivalent

- Courses taught in German beyond GERS203 or its equivalent
- 3 of these 5 courses (9 hours) must be 3xx or 4xx level: one language, one literature, and one culture
- Prerequisites: GERS103 and GERS203 are required, or their equivalents as determined through departmental advising
- All courses must be passed with a grade of "C-" or higher.
- An overall GPA of 2.0 in the minor is required for graduation.

# Hebrew Studies Minor (SLLC)

**College of Arts and Humanities**
School of Languages, Literatures, and Cultures
http://sllc.umd.edu/hebrew/

**Program Director:** Avital Karpman, Ph.D.

The minor in Hebrew is an interdisciplinary program offered through the cooperation of the **School of Languages, Literatures, and Cultures (SLLC)** and the **Jewish Studies Program.**

The minor in Hebrew will prepare students to function in a wide variety of communicative situations in Hebrew-speaking settings. Students will hone their skills in reading, writing, listening, speaking and cultural understanding. The minor consists of 16 or more credits from five courses and includes required advanced language courses and electives in topics such as Israeli literature, Israel studies and Zionism, Israeli cinema and Hebrew Bible.

To make an appointment to explore or declare a minor go to: http://arhu.umd.edu/academics/undergraduate-studies/minors/.

## Program Learning Outcomes

1. Students will demonstrate proficiency in reading, writing, listening and speaking corresponding with the ACTFL definition of advanced-high.
2. Students will show an in-depth understanding of aspects of Israeli culture.

# REQUIREMENTS

The Minor in Hebrew Studies consists of at least 16 credits from five courses.

Additional restrictions:

- Nine credits of the minor must be at the upper level (300/400).
- No more than six credits (two courses) may count toward both the student's major and the Hebrew minor.
- No more than one upper-division course may be taken in English translation.
- Independent study and special courses offered in Winter and Summer terms may be counted toward the Minor with the approval of the Advisor.
- No more than six credits (one or two courses) may be taken at an institution other than the University of Maryland, College Park. All upper-division credits to be applied to the minor must be taken at this university.
- No course with an earned grade below "C-" may count toward the minor.
- An overall GPA of 2.0 in the minor is required for graduation.

## Prerequisites

These courses, or similar background experience and World Language Placement scores are pre-requisites and do not count toward the minor. Please note that course numbers may change, and students may place out of some of the courses.

| Course | Title | Credits |
|---|---|---|
| HEBR106 | Intensive Elementary Hebrew I | 4 |
| HEBR107 | Intensive Elementary Hebrew II | 4 |
| HEBR206 | Intermediate Intensive Hebrew I | 4 |

## Requirements for the Minor

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| HEBR207 | Intensive Intermediate Hebrew II | 4 |
| HEBR249 | Special Topics in Hebrew Studies (taught in Hebrew) | 3 |
| HEBR313 | Conversation and Composition I | 3 |
| HEBR314 | Conversation and Composition II | 3 |
| **Electives for the Minor** [1] | | **3** |
| JWST219 | Special Topics in Jewish Studies (JWST219I Introduction to Israeli Cinema) | |
| JWST262 | Introduction to the Hebrew Bible/Old Testament | |
| ISRL282 | | |
| JWST319 | Special Topics in Jewish Studies (JWST319K Jewry of Muscle: Zionism and Jewish Masculinity) | |
| JWST319 | Special Topics in Jewish Studies (JWST319Q Self and Other in Israeli Culture) | |
| HEBR381 | Introduction to Hebrew Cultural Studies (taught in Hebrew) | |
| HEBR386 | Experiential Learning (taught in Hebrew) | |
| HEBR499 | Independent Study in Hebrew (taught in Hebrew) | |
| JWST478 | Readings in Modern Hebrew (taught in Hebrew) | |
| HEBR498 | Special Topics in Hebrew (taught in English or Hebrew) | |
| JWST459 | Readings in Medieval Hebrew (JWST459D The Study of the Hebrew Bible in the Middle Ages) | |
| **Total Credits** | | **16** |

[1] Three or more credits required from these previously offered courses, or other relevant courses in Jewish literature, Israeli film, Biblical Hebrew, etc. may be approved by the advisor.
Note: it may be possible to arrange with JWST and ISRL professors to provide course texts and accept assignments in Hebrew rather than English. The language of instruction is often related to the proficiency abilities of the students in the class.

Note: Students who place into the advanced level may take HEBR313, HEBR314, and HEBR249. They must replace HEBR207 (a required course at the intermediate level) with the equivalent number of credits, selected in consultation with, or with the approval of, the Advisor.

## ADVISING

Advising is provided by Dr. Karpman, the Program Director (akarpman@umd.edu). Dr. Karpman meets with minor students when they declare their interest in the minor and again whenever students need to adjust their curricular plan. At the initial meeting, which should occur at least a year before graduation, Dr. Karpman helps the student map out a course of study within the program. Dr. Karpman is also responsible for assessing the completion of the requirements for the minor.

# Italian Studies

**College of Arts and Humanities**
3106 Jiménez Hall
Phone: 301-405-4025
http://sllc.umd.edu/italian/

The Italian Program is committed to the promotion of Italian language and culture in Maryland, the United States, and the world. In our academic programs, we strive to provide outstanding and innovative instruction in Italian studies to prepare students to communicate effectively in spoken and written Italian, to gain and transmit knowledge of the cultural perspectives and artistic products of Italy, and to be culturally sensitive members of today's diverse society.

## PROGRAMS

### Major

- Italian Studies Major (p. 219)

### Minor

- Italian Language and Culture Minor (p. 219)

## ADVISING

**Advisor:** Dr. Giuseppe Falvo
gfalvo@umd.edu

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

## OPPORTUNITIES

### Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding Juniors and/or Seniors to display their research projects. The forum takes place in late April in the Language House (St. Mary's).

### Internships

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information, see the SLLC website: http://sllc.umd.edu.

### Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers a variety of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

### Awards and Recognition

The Undergraduate Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC Undergraduate Research Forum.

# Italian Language and Culture Minor

**School of Languages, Literatures, and Cultures (SLLC)**
http://sllc.umd.edu/italian/

**Program Director:** Giuseppe Falvo, Ph.D.

The minor in Italian Language and Culture is an official recognition that a student has reached a certain level of proficiency in the target language. The minor will serve as a validation to potential employers of the student's proficiency in Italian.

To make an appointment to explore or declare a minor, go to http://arhu.umd.edu/academics/undergraduate-studies/minors/.

## REQUIREMENTS

**15 credits are required for this minor**

Prerequisite: Successful completion of ITAL203 Intensive Intermediate Italian

| Course | Title | Credits |
|---|---|---|
| ITAL204 | Advanced Intermediate Italian | 3 |
| ITAL207 | Speaking and Writing in Italian | 3 |
| ITAL301 | Italian Composition | 3 |
| ITAL311 | Advanced Oral Expression: Current Events | 3 |
| Select one additional course taught in Italian at the 3xx or 4xx level | | 3 |
| **Total Credits** | | **15** |

- All courses must be taught in Italian
- A maximum of six (6) credits can be applied to the minor from courses taken at other institutions, with the exception of the Study Abroad Program in Italy, which allows the transfer of nine (9) credits.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- Students who begin their study as native/fluent speakers should seek the advice of the Italian advisor before choosing the courses they will use to replace the core minor courses.

# Italian Studies Major

**Program Director:** Giuseppe Falvo, Ph.D.

Italian is the language of modern, contemporary Italy, through which its culture has become known to the world, including the beauty and ramifications of its art, music, poetry, fashion, food, and architecture. Italian has also emerged as the language of an industrialized nation playing an active role within the European Union. It is the intent of the Italian program (ITAL) to bring its students to a level of linguistic and cultural understanding that allows them to participate actively in on-going events and conversations connected to the cultural and professional worlds of this dynamic country. The Italian program offers a

range of courses well suited for students who are preparing themselves for graduate study, research, professional development in the varied fields of the humanities and sciences, and those seeking a teaching career in education.

## Placement in Courses

For information about the World Language Placement, go to: http://arhu.umd.edu/academics/world-language-placement/.

## Program Learning Outcomes

1. Students will be able to communicate effectively in writing in Italian;
2. Students will be able to express knowledge of Italian culture and society orally at the intermediate level according to the ACTFL Standard scale;
3. Students will be able to summarize, understand and interpret written texts in a variety of genres and topics.

# REQUIREMENTS

*Prerequisites:* Successful completion of Italian language through intermediate level (ITAL203 or equivalent)

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Major Core Requirements** | | |
| ITAL204 | Advanced Intermediate Italian | 3 |
| ITAL207 | Speaking and Writing in Italian | 3 |
| ITAL252 | Stories of Italy | 3 |
| or ITAL261 | Cuisine, Culture, and Society in Italy Yesterday and Today | |
| ITAL301 | Italian Composition | 3 |
| ITAL311 | Advanced Oral Expression: Current Events | 3 |
| ITAL401 | | 3 |
| ITAL361 | Survey of Italian Society and Culture: From Fascism to the Seventies | 3 |
| ITAL362 | Survey of Italian Society and Culture: From the 1980s to thePresent Day | 3 |
| Select three courses at the ITAL4xx level each with associated ITAL478 course [1] | | 12 |
| **Total Credits** | | **36** |

[1] N.B. For each course at the 4xx level, Italian majors must register for a 1-credit colloquium (ITAL478)

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# OPPORTUNITIES

## Study Abroad

For information on study abroad programs see the program advisor and/or the Education Abroad website http://globalmaryland.umd.edu/offices/education-abroad/.

# Japanese

**College of Arts and Humanities**
2106 Jiménez Hall
Phone: 301-405-4025
http://sllc.umd.edu/japanese/

The Department of East Asian Languages and Cultures (EALC) promotes a broad knowledge of and deep engagement with the languages, literatures, and cultures of China, Japan and Korea. We emphasize the common inheritance and enduring legacies of these countries, as well as the varied experiences of diverse groups within their ever-changing societies and communities. EALC offers BA programs in Chinese and Japanese, and minors in Chinese, Japanese, and Korean. The Center for East Asian Studies (CEAS) also offers a 24-credit undergraduate certificate program.

# PROGRAMS

## Major

- Japanese Major (p. 221)

## Minor

- Japanese Minor (p. 222)

# ADVISING

**Japanese Major Advisor:** Ms. Makiko Inoue, minoue@umd.edu

**Japanese Minor Advisor:** Dr. Michele M. Mason, mmmason@umd.edu (note 3 "m"s)

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

# OPPORTUNITIES

## Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding juniors and/or seniors to display their research projects. The forum takes place in late April in the Language House (St. Mary's).

## Internships

### Annual Language Career and Internship Fair

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information see the SLLC website: http://sllc.umd.edu.

## Student Societies and Professional Organizations

Individual SLLC departments hold annual induction ceremonies for students who are eligible for honor society membership. The Japanese program participates in the College Chapter of the Japanese National Honor Society (https://www.aatj.org/jnhs/), which is overseen by the American Association of Teachers of Japanese (AATJ). Eligible students are inducted in the spring semester just prior to their graduation.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers a variety of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu. For information about Japan-specific scholarships for study abroad, please see the "Opportunities" section of the Japanese major (p. 222) page of the catalog.

## Awards and Recognition

The Undergraduate Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC Undergraduate Research Forum.

# Japanese Major

**School of Languages, Literatures, and Cultures**
http://sllc.umd.edu/fields/japanese/major/

**Major Advisor:** Ms. Makiko Inoue

The Japanese major provides the training and cultural background needed for entering East Asia-related careers in such fields as the arts, business, government, international relations, higher education, and the media. Students may also consider a double major in Japanese and another discipline, such as art history, business, economics, computer science, international relations, or linguistics. Another option available to students is a 24-credit undergraduate certificate in East Asian Studies.

After completing the prerequisite of one year of language (12 credits - JAPN101 Elementary Japanese I, six hours per week, fall or summer I; and JAPN102 Elementary Japanese II, six hours per week, spring or summer II), students must complete 42 credits for the major course requirements (24 language, 6 civilization/history, 12 elective).

## Placement in Courses

For information about the World Language Placement, go to: http://arhu.umd.edu/academics/world-language-placement/.

## Program Learning Outcomes

1. Upon completion of the core language sequence of JAPN 101-302, students will be able to ask and answer questions, handle topics related to their daily life and autobiographical topics by means of narration and description, engage in conversation in a participatory manner, and disagree by providing supporting reasons about a range of everyday topics, using passable grammar, vocabulary, and speech style(s) appropriate to specific social contexts.
2. Students will be able to read and understand kanji (Chinese characters) and kanji compound vocabulary introduced during the course; grasp the main points in a reading passage, analyze syntactic (grammatical) structures, recognize the function of polite (honorific/humble) language styles, and identify deleted subjects.
3. Upon completion of one or more courses in literary/cultural studies, students will demonstrate strong skills in interpreting a variety of literary, cultural, and historical texts in translation, and indicate a nuanced and deep understanding of the diversity of Japanese literature(s) and culture(s).

# REQUIREMENTS

Students must take language-acquisition courses sequentially, and receive a grade of C- or better to advance to the next level. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Language Requirements** | | |
| JAPN201 | Intermediate Japanese I | 6 |
| JAPN202 | Intermediate Japanese II | 6 |
| JAPN301 | Advanced Japanese I | 6 |
| JAPN302 | Advanced Japanese II | 6 |
| **Civilization/History Requirements** | | |
| Select an Option: | | 6 |
| Option I: | | |
| HIST284 | East Asian Civilization I | |
| HIST483 | History of Japan Since 1800 | |
| Option II: | | |
| HIST285 | East Asian Civilization II | |
| HIST482 | History of Japan to 1800 | |
| **Electives** [1] | | |
| Courses that fulfill the literature/cultural studies requirement for the major include (3xx-level or above): | | 3 |
| JAPN314 | | |
| JAPN315 | | |
| JAPN316 | Women and Japanese Literature: Japanese Literature in Translation | |
| JAPN325 | Modern Japanese Literature and Film (In Translation) | |
| JAPN424 | Japan From the Margins | |
| JAPN425 | The Atomic Bomb in Literature and Memory | |
| JAPN498 | Special Topics in Japanese Studies | |
| Courses that fulfill the linguistics requirement for the major include (3xx-level or above): | | 3 |
| JAPN421 | History of the Japanese Language | |
| JAPN422 | | |
| JAPN428 | Seminar in Japanese Discourse and Conversation Analysis | |
| JAPN438 | Topics in Japanese Pragmatics | |
| Courses that fulfill general elective requirements (3xx-level or above): | | 3 |
| JAPN311 | Traditional Japanese Language and Culture | |
| JAPN401 | Readings in Modern Japanese Literature | |
| JAPN402 | Readings in Japanese Cultural Studies | |

| | | |
|---|---|---|
| JAPN407 | The Art of Translation | |
| EALL300 | The Languages of East Asia | |
| Pertinent courses at the 3xx or 4xx level in History and Art History can be applied toward the general elective requirements. JAPN courses in literature/cultural studies or linguistics at the 3xx or 4xx level which are not being applied to those categories may also be applied to the general elective category. | | 3 |
| **Total Credits** | | **42** |

[1] Electives must be in Japanese language, literature, linguistics, or other East Asian subjects (one must be in the area of Japanese linguistics and one in the area of Japanese literature), and are subject to approval by the student's advisor.

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# OPPORTUNITIES

## Internships

Students in the Japanese program have successfully applied for a number of internship opportunities through the Japanese Information and Cultural Center (JICC), The Japan-America Society of Washington, D.C. (JASWDC), and other local organizations. For more information, please see the program advisor.

## Study Abroad

The Japanese program offers a number of exchange program opportunities on a semester or yearlong basis with Japanese universities including Keio and Waseda in Tokyo, as well as study abroad opportunities through programs such as the University Studies Abroad Consortium (USAC) in Osaka, Japan. For more information on study abroad programs, see the program advisor and/or the Education Abroad website http://globalmaryland.umd.edu/offices/education-abroad/.

## Scholarships and Financial Assistance

Students are encouraged to pursue scholarship funding through the Bridging (https://www.aatj.org/studyabroad/japan-bridging-scholarships/), Gilman (https://www.iie.org/Programs/Gilman-Scholarship-Program/), Watanabe (https://www.usjapancouncil.org/watanabe-scholarship/), Freeman (https://www.iie.org/Programs/Freeman-ASIA/), Boren (https://borenawards.org/eligible-programs/#countries) and Critical Language Scholarship (https://clscholarship.org/languages/japanese/) programs. We also urge you to seek advice when applying to such programs from UMD's National Scholarships Office (http://scholarships.umd.edu); the staff there offer helpful workshops which can help you to prepare a successful application.

# Japanese Minor

**School of Languages, Literatures, and Cultures**
http://sllc.umd.edu/fields/japanese/minor/

**Minor Advisor:** Michele M. Mason, Ph.D.

This 15-credit minor is designed to provide a concentration in Japanese language and an introduction to the academic fields of Japanese literature, cultural studies, and linguistics. Additionally, the minor will allow Japanese heritage speakers the opportunity to engage in language study for special purposes (such as Business Japanese, Translation, or Classical Japanese) as well as in the study of Japanese linguistics, literature, and cultural studies.

To make an appointment to explore or declare a minor, go to http://arhu.umd.edu/academics/undergraduate-studies/minors/.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| Select 6 credits of Japanese language courses: | | 6 |
| JAPN202 | Intermediate Japanese II (6 credits) | |
| JAPN301 | Advanced Japanese I (6 credits) | |
| JAPN302 | Advanced Japanese II (6 credits) | |
| JAPN311 | Traditional Japanese Language and Culture | |
| JAPN401 | Readings in Modern Japanese Literature (3 credits) | |
| JAPN402 | Readings in Japanese Cultural Studies (3 credits) | |
| JAPN407 | The Art of Translation | |
| JAPN499 | Directed Study in Japanese (3 credits) | |
| Select one Japanese linguistics course: | | 3 |
| JAPN421 | History of the Japanese Language | |
| JAPN422 | | |
| JAPN428 | Seminar in Japanese Discourse and Conversation Analysis | |
| JAPN438 | Topics in Japanese Pragmatics | |
| Select one Japanese literature/cultural studies course: | | 3 |
| JAPN221 | Radical Transformations in Japanese Culture | |
| JAPN314 | | |
| JAPN315 | | |
| JAPN316 | Women and Japanese Literature: Japanese Literature in Translation | |
| JAPN325 | Modern Japanese Literature and Film (In Translation) | |
| JAPN424 | Japan From the Margins | |
| JAPN425 | The Atomic Bomb in Literature and Memory | |
| JAPN498 | Special Topics in Japanese Studies | |
| Select one additional 3 credit course from the lists above. | | 3 |
| **Total Credits** | | **15** |

- At least nine of the fifteen hours must be at the 3xx or 4xx level.
- Students must receive a "C-" or better in all courses used for the minor.
- An overall GPA of 2.0 in the minor is required for graduation.

- No more than 6 of the 15 credits toward the minor may be taken at an institution other than UMCP.

# Korean Studies Minor

**School of Languages, Literatures, and Cultures**
http://sllc.umd.edu/korean/

**Program Director:** Seong Minne Koh (skoh@umd.edu)

The Korean Studies Minor will provide students with a basic knowledge of Korea and its language and culture. Five 3-credit courses are required, and three of the five must be at the 3xx or 4xx level. This minor is open to both heritage and non-heritage students alike. Those interested should contact the faculty in the Korean Language Program for advising.

To make an appointment to explore or declare a minor, go to: http://arhu.umd.edu/academics/undergraduate-studies/minors/.

## REQUIREMENTS

**15 credits are required for the minor:**

| Course | Title | Credits |
|---|---|---|
| **Korean Language and Language-Related Courses** | | |
| Select two courses devoted specifically to Korean language or language-related studies from the following: [1] | | 6 |
| KORA201 | Intermediate Korean I | |
| KORA202 | Intermediate Korean II | |
| KORA211 | | |
| KORA212 | | |
| KORA241 | History of the Korean Language | |
| KORA242 | | |
| KORA311 | | |
| KORA312 | | |
| KORA345 | Korean Language and Linguistics | |
| **Korea-Related Courses** | | |
| Select three courses in Korea-related studies from fields such as history, sociology, and art history: [2] | | 9 |
| HIST319 | Special Topics in History (HIST319N Korean History) | |
| SOCY398 | Special Topics in Sociology (SOCY398K Contemporary South Korean Society ) | |
| HIST284 | East Asian Civilization I [3] | |
| HIST285 | East Asian Civilization II [3] | |
| HIST319 | Special Topics in History (HIST319C Asian Age in World History ) | |
| EALL300 | The Languages of East Asia [2] | |
| GVPT359 | Topics in Comparative Politics (GVPT359C Politics of Japan and Northeast Asia ) | |
| ARTH290 | Art and Society in Asia [3] | |
| **Total Credits** | | **15** |

[1] Both must be at the second-year level or above.
[2] At least one of these courses must have broad East Asian content to provide breadth to the minor.
[3] East Asian courses

- Other Korea-related courses may be used to satisfy the requirements, subject to the approval of the Korean Program advisor.
- Three of the five required courses must be at the 3xx or 4xx level.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- No more than six credits can overlap with the major, and no more than six credits can come from off-campus (study abroad, transfer, etc.).

***Note:*** CIC courses through the Big10 courseshare arrangements will be considered for the Korean Studies Minor

# Persian Studies

**College of Arts and Humanities**
3215 Jiménez Hall
Phone: 301-405-1891
http://sllc.umd.edu/persian/

*Roshan Institute for Persian Studies* at the University of Maryland aspires to be the premier center for the learning, understanding, and appreciation of Persian culture in the United States. Toward this end, we seek to provide outstanding course offerings and programs in Persian language, literature, history, and culture; to foster communication and community ties among people of Persian heritage and those interested in Persian studies; and to serve as a model for encouraging intercultural communication among peoples of varying backgrounds. In pursuit of these goals, the program offers a major and a minor in Persian Studies.

## PROGRAMS

### Major

- Persian Studies Major (p. 224)

### Minor

- Persian Studies Minor (p. 225)

### Persian Flagship

- UMD Persian Flagship (https://sllc.umd.edu/special-programs/arabic-persian/persian-flagship/)

## ADVISING

**Advisor:** Dr. Ali Abasi, aabasi@umd.edu

To review the academic plan for this major, go to: http://arhu.umd.edu/academicsadvising/academic-plans/.

## OPPORTUNITIES

### Persian Flagship

The Persian Flagship enables students of any major to reach a professional level of Persian and advanced intercultural competence by graduation. It consists of a language and culture coursework and co-curricular program at UMD, and a year-long simulated immersion capstone component on campus at the end, leading to Flagship certification. Visit the UMD Persian Flagship website (https://

sllc.umd.edu/special-programs/arabic-persian/persian-flagship/) to learn more.

## Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding juniors and/or seniors to display their research projects. The forum takes place in late April in the Language House (St. Mary's).

## Internships

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information, see the SLLC website: http://sllc.umd.edu.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers a variety of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

# Persian Studies Major

**Program Director:** Fatemeh Keshavarz, Ph.D.

The 36-credit major in Persian Studies (PERS) offers a comprehensive study of Persian language and culture. The program's interdisciplinary curriculum provides students with extensive training to become proficient in the language and acquaints them with the evolution of Iranian and other Persianate cultures in their diverse perspectives, practices, and products. The B.A. in Persian Studies prepares students for a range of professional opportunities, including careers in government, education, the arts, business, international relations, and communication. Many undergraduates choose to double major or do a double degree in Persian and another subject, including agriculture, arts and humanities majors, business, computer science, engineering, international relations, and journalism.

## Placement in Courses

For information about the World Language Placement, go to: http://arhu.umd.edu/academics/world-language-placement/.

## Program Learning Outcomes

1. LANGUAGE PROFICIENCY: Students will be able to perform in Modern Standard Persian across the four language skills at Intermediate Level (ACTFL Proficiency Guidelines, 2012).
2. DISCIPLINARY KNOWLEDGE: Students will be able to demonstrate, primarily in writing, knowledge of major trends, events, texts, and figures within the social, cultural, literary and historical contexts of Iran.
3. ANALYTICAL AND ARGUMENTATIVE SKILLS: Students will be able to exhibit the ability to distinguish between fact and opinion, critically read and evaluate sources, and write extended source-based texts evincing critical analysis and evidence-based argumentation.
4. SOCIAL JUSTICE COMPETENCIES: Students will be able to (a) describe various aspects of diversity in the Iranian society involving language, religion, ethnicity, gender, class, and race, as well as (b) recognize, explain, and interrogate key cultural, social, political, and historical discourses and practices that shape and challenge structures of power, privilege, oppression in Iranian society, and (c) , and make informed linguistic choices with diversity in mind and understand and describe social justice issues in Persian at the target language proficiency level.

# REQUIREMENTS

**Notice of Addendum:** requirements for this program were updated effective Spring 2025 and have been published on ADDENDA TO THIS CATALOG (https://academiccatalog.umd.edu/undergraduate/addenda/#persian-studies-major).

All students planning to pursue the major in Persian Studies should contact the undergraduate advisor for Persian, who will be responsible for placement, oversight, and record keeping.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Prerequisites** [1] | | |
| PERS101 | Elementary Persian I | |
| PERS102 | Elementary Persian II | |

| Course | Title | Credits |
|---|---|---|
| **Core Sequence** [2] | | **18** |
| PERS201 | Intermediate Persian I | |
| PERS211 | Intermediate Conversation | |
| PERS202 | Intermediate Persian II | |
| PERS212 | Intermediate Reading in Persian | |
| PERS301 | Advanced Persian I | |
| PERS302 | Advanced Persian II | |
| **Electives in Persian** | | |
| Select six credits of 3xx or 4xx level electives of the following: | | 6 |
| PERS311 | Persian Media | |
| PERS312 | Contemporary Iranian Culture | |
| PERS386 | Experiential Learning | |
| PERS402 | Persian Translation | |
| PERS498 | Special Topics in Persian Studies | |
| **Electives in English** | | |
| Select up to 12 credits of the following: [3] | | 12 |
| PERS251 | Modern Iran | |
| PERS252 | Gender and Body in Iran | |
| PERS283 | Iranian Cinema | |
| PERS353 | Iranian Life in Literature and Film | |
| PERS371 | Introduction to Persian Literature in Translation | |
| PERS398 | Special Topics in Persian Studies | |
| **Supporting Area** | | |
| Select nine 3xx or 4xx level credits in a single area of study outside Persian Studies as a complement to the major [4] | | 9 |

[1] There are no prerequisites for students with equivalent knowledge.

[2] All prerequisites imply "or equivalent knowledge." In cases where a student has equivalent knowledge, required language-focus credits are replaced in consultation with undergraduate advisor. This may include courses in Arabic for those students who intend to study Persian literature in Persian, as Arabic is integral to the history of Persian Literature.

[3] No prerequisites
Courses in Middle Eastern Studies taught in English outside the department may be substituted on prior approval of the undergraduate advisor.

[4] The area of study outside Persian Studies should be cleared with the undergraduate advisor upon declaring a major. Double majors and minors fulfill this requirement.

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# OPPORTUNITIES

## Scholarship Opportunities for Persian Study

### Persian Language Flagship Scholarship

Persian Flagship students are eligible to receive need-based funding when it is most necessary – to support intensive domestic summer study at an approved institution (such as the University of Maryland Summer Language Institute), and for the domestic capstone year.

In order to apply for funding through the Flagship Program, students must demonstrate that they have actively pursued other scholarship opportunities. Each student has a **lifetime maximum of $20,000** that they are eligible to receive from The Language Flagship Program.

### Boren Awards

Boren Scholars and Fellows study a wide range of critical languages (https://www.borenawards.org/eligible-programs/#languages), including **Persian**. Boren Awards are available to students of all proficiency levels who are committed to enhancing their skills.

The Boren Fellowships offer up to **$12,000** for summer intensive language study. If requested, the maximum total combined domestic and overseas award amount is **$30,000**. Domestic study is entirely optional but may be useful preparation for Boren Fellows whose overseas program requires that they arrive in country with strong language skills. See further guidance here (https://www.borenawards.org/eligible-programs/#fellows-domestic).

### Critical Language Scholarship

http://clscholarship.org

The Critical Language Scholarship (CLS) Program is a fully funded summer overseas language and cultural immersion program for American undergraduate and graduate students. With the goal of broadening the base of Americans studying and mastering critical languages and building relationships between the people of the United States and other countries, CLS provides opportunities to a diverse range of students from across the United States at every level of language learning.

The CLS Program is a program of the U.S. Department of State.

Location: Dushanbe, Tajikistan
Requirements: One year of Persian Study before program begins, U.S. Citizenship
Deadline: November
Minimum GPA: N/A
Amount: Full cost of attendance provided.

### Middlebury Institute of International Studies-Language Flagship Scholarship

The Middlebury Institute of International Studies at Monterey has partnered with The Language Flagship to provide a guaranteed scholarship of **$16,000** each year to its students. We recognize Language Flagship students and their commitment to language and cross-cultural communication as a valuable part of our campus community and global alumni network.

You may also receive additional **merit and need-based scholarships** depending on the strength of your application or financial situation.

#### How to Apply

1. Submit your application (http://www.miis.edu/admissions/apply/) for one of our degree programs by the next **priority deadline**. Please indicate that you're affiliated with Language Flagship when prompted on the online application.
2. You may also waive your application fee at http://go.miis.edu/LFwaiver/.

### For a Host of Other Scholarships, Please Visit:

http://sllc.umd.edu/special-programs/arabic-persian/persian-flagship/funding/

# Persian Studies Minor

**Notice of Addendum:** The program description was updated effective Spring 2025 and has been published on ADDENDA TO THIS CATALOG (https://academiccatalog.umd.edu/undergraduate/addenda/#persian-studies-minor).

**School of Languages, Literatures, and Cultures**
http://sllc.umd.edu/persian/

**Program Director:** Ali Abasi, Ph.D.

This 15-credit minor (5 courses, excluding prerequisites) will provide students with a background in linguistic, literary, and cultural aspects of the study of Persian, including the cultures of Iran, Afghanistan, Persian-speaking Central Asia, and the Persian diaspora. Students will work toward linguistic competence in speaking, reading, writing, and

listening. Additionally, students will be introduced to Iranian culture in its diverse perspectives, practices, and products. The Minor in Persian Studies complements a range of professions, which include careers in education, engineering, government, journalism, the arts, business, and communication.

To make an appointment to explore or declare a minor, go to http://arhu.umd.edu/academics/undergraduate-studies/minors/.

# REQUIREMENTS

**Notice of Addendum:** requirements for this program were updated effective Spring 2025 and have been published on ADDENDA TO THIS CATALOG (https://academiccatalog.umd.edu/undergraduate/addenda/#persian-studies-minor).

- A minimum of 9 credits must be earned through courses taught in Persian.
- Up to 6 may be earned from PERS courses taught in English.
- A minimum of 9 credits must be at the 3xx or 4xx level.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- A maximum of 6 credits may be applied to the minor from courses taken at other institutions.

No courses applied to the minor may count toward another minor.

## Prerequisites

| Course | Title | Credits |
|---|---|---|
| PERS101 | Elementary Persian I | |
| PERS102 | Elementary Persian II | |
| PERS201 | Intermediate Persian I | |
| PERS211 | Intermediate Conversation | |

There are no prerequisites for students with equivalent knowledge.

| Course | Title | Credits |
|---|---|---|
| **Courses Taught in Persian** | | |
| Select at least nine credits: [1] | | 9 |
| PERS202 | Intermediate Persian II | |
| PERS301 | Advanced Persian I | |
| PERS302 | Advanced Persian II | |
| PERS311 | Persian Media | |
| PERS312 | Contemporary Iranian Culture | |
| PERS401 | | |
| PERS402 | Persian Translation | |
| PERS452 | | |
| PERS498 | Special Topics in Persian Studies | |
| **Persian Studies Courses Taught in English** | | |
| Select up to 6 credits of the following: [2] | | 6 |
| PERS251 | Modern Iran | |
| PERS252 | Gender and Body in Iran | |
| PERS283 | Iranian Cinema | |
| PERS353 | Iranian Life in Literature and Film | |
| PERS371 | Introduction to Persian Literature in Translation | |
| PERS398 | Special Topics in Persian Studies | |
| **Total Credits** | | **15** |

1 All prerequisites imply "or equivalent knowledge."
2 No prerequisites

# ADVISING

All students planning to pursue the minor in Persian Studies should contact the undergraduate advisor for Persian, who will be responsible for oversight and record keeping.

# Portuguese and Brazilian Studies Minor

**School of Languages, Literatures, and Cultures**
http://sllc.umd.edu/fields/portuguese/

**Program Director and Advisor:** Thayse Leal Lima, Ph.D.

The minor consists of 15 credits of coursework beyond the pre-requisite courses (PORT103 and PORT203) or their equivalents. Students complete intermediate to advanced immersive language courses that prepare them to communicate, understand, read and write in Portuguese. In addition, students will gain a rich understanding of the cultural, political, and social aspects of Brazil and other Portuguese-speaking countries. The minor's focus on culture, cinema, and language allows students to explore their interests while deepening their capacity to communicate across cultures.

To make an appointment to explore or declare a minor, go to http://arhu.umd.edu/academics/undergraduate-studies/minors/.

# REQUIREMENTS

**Prerequisite:** PORT103 and PORT203 (or equivalent as determined through consultation with a program advisor)

| Course | Title | Credits |
|---|---|---|
| Select 15 credits of the following: | | 15 |
| PORT205 | Intermediate Reading and Conversation in Portuguese I | |
| PORT224 | Brazilian Culture | |
| PORT228 | Selected Topics in Latin American Literature and Society [1] | |
| PORT320 | Survey of Portuguese Literature | |
| PORT408 | Special Topics in Portuguese Literature | |
| PORT409 | Special Topics in Brazilian Literature | |
| PORT478 | Themes and Movements of Luso-Brazilian Literature in Translation [1] | |
| PORT222 | Cannibals, Savages and Carnivalization: The Making of Brazilian National Culture | |
| PORT229 | Selected Topics in Latin American Culture | |
| PORT234 | Issues in Latin American and Caribbean Studies I | |
| PORT235 | Issues in Latin American and Caribbean Studies II | |
| PORT269 | Special Topics in Study Abroad II | |
| PORT332 | Brazilian Cinema | |
| PORT369 | Special Topics in Study Abroad III | |
| PORT386 | Experiential Learning | |
| PORT388 | Special Topics in Brazilian Studies | |

| | |
|---|---|
| PORT399 | Independent Study in Portuguese |
| PORT405 | Portuguese for Spanish Speakers |
| PORT480 | Machado de Assis |
| PORT207 | Intermediate Reading and Conversation in Portuguese II |
| PORT223 | |
| PORT230 | Brazilian Portuguese through Film |
| **Total Credits** | **15** |

[1] Portuguese PORT228 and PORT478 are conducted in English. The majority of written assignments will be in Portuguese for those students in the minor program.

- At least 6 credits should be taken through courses above PORT203 taught in the Portuguese language.
- At least 9 credits must be taken in upper-level courses (3xx or 4xx level).
- A maximum of 6 credits may be applied to the minor from courses taken at other institutions.
- A maximum of 9 credits may be applied from a University of Maryland Study Abroad program.
- All courses must be passed with a grade of C- or better.
- An overall GPA of 2.0 in the minor is required for graduation.

## ADVISING

Professor Thayse Leal Lima, tlima@umd.edu

Please write to Dr. Lima with the following information: whether you have already declared the minor in Portuguese, when you are planning to graduate, which courses you have taken in Portuguese (at UMD or elsewhere), and your reason for declaring the minor in Portuguese.

# Romance Languages

**College of Arts and Humanities**
3106 Jiménez Hall
Phone: 301-405-4025
http://sllc.umd.edu/fields/romance-languages/major/

The Romance Languages Program is intended for students who want to specialize in two of the romance language majors offered in SLLC: French, Italian, and Spanish. Students selecting this major take a total of 45 credits selected from courses in two of the three components. The first four courses listed under each group are required for that particular language component; exceptions or substitutions may be made with the approval of the departmental language advisor only, in consultation with the Romance Languages advisor. Twenty-one credits are taken in each of the two languages, as specified, and three additional credits are taken at the 4xx level in either of the languages chosen. Literature or civilization courses may not be taken in translation. Students who wish to apply for Teacher's Certification should consult the College of Education.

## PROGRAMS

### Major

- Romance Languages Major (p. 227)

## ADVISING

**Advisor:** Giuseppe Falvo, Ph.D., gfalvo@umd.edu

To review the academic plan for this major, go to: http://arhu.umd.edu/academicsadvising/academic-plans/.

## OPPORTUNITIES

### Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding juniors and/or seniors to display their research projects. The forum takes place in late April in the Language House (St. Mary's).

### Internships

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information, see the SLLC website: http://sllc.umd.edu.

### Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers a variety of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

### Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

# Romance Languages Major

**Program Director:** Giuseppe Falvo, Ph.D.

The Romance Languages Program is intended for students who want to specialize in two of the three Romance language majors offered in SLLC: French, Italian, and Spanish. Students selecting this major take a total of 45 credits selected from courses in two of the three components. The first four courses listed under each group are required for that particular language component; exceptions or substitutions may be made with the approval of the departmental language advisor only, in consultation with the Romance Languages advisor. 21 credits are taken in each of the two languages, as specified, and three additional credits are taken at the 4xx level in either of the languages chosen. Literature or civilization courses may not be taken in translation. Students who wish to apply for Teacher's Certification should consult the College of Education.

### Placement in Courses

For information about the World Language Placement, go to: http://arhu.umd.edu/academics/world-language-placement/.

### Program Learning Outcomes

1. Demonstrate knowledge and understanding of varied aspects of the cultures of the speakers of the two Romance languages selected.

2. Show competence in speaking, comprehending, writing in, and reading the two languages as a way to communicate with people of other cultures.
3. Demonstrate proficiency in oral and written expression on a range of topics in the two languages.
4. Demonstrate the ability to analyze and interpret texts in a variety of genres within each of the two language spheres.

# REQUIREMENTS

Students must take language-acquisition courses sequentially. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Language Requirements** | | |
| Select two of the following: | | 42 |
| French | | |
| Italian | | |
| Spanish | | |
| **Additional Requirement for ROML Majors** | | |
| One additional course at the 4xx level in one of the two languages | | 3 |
| **Total Credits** | | **45** |

# Language Requirements

## French Requirements

| Course | Title | Credits |
|---|---|---|
| FREN204 | French Grammar and Composition | 3 |
| FREN250 | Introduction to Cultural and Textual Analysis | 3 |
| FREN301 | Composition and Style | 3 |
| FREN351 | From Romanticism to the Age of Modernism and Beyond | 3 |
| FREN352 | From the Age of Epic and Romance to the Enlightenment | 3 |
| FREN4xx | Two additional literature or civilization courses at the 4xx level | 6 |
| **Total Credits** | | **21** |

## Italian Requirements

| Course | Title | Credits |
|---|---|---|
| ITAL207 | Speaking and Writing in Italian | 3 |
| ITAL301 | Italian Composition | 3 |
| Select one additional course at the 3xx level in literature or culture: | | 3 |
| ITAL351 | | |
| ITAL352 | | |
| ITAL361 | Survey of Italian Society and Culture: From Fascism to the Seventies | |
| ITAL362 | Survey of Italian Society and Culture: From the 1980s to thePresent Day | |
| ITAL4xx | Three additional literature or civilization courses at the 4xx level with 1 credit colloquium | 12 |
| **Total Credits** | | **21** |

## Spanish Requirements

| Course | Title | Credits |
|---|---|---|
| SPAN207 | Reading and Writing in Spanish | 3 |
| SPAN301 | Advanced Grammar and Composition I | 3 |
| SPAN303 | Approaches to Cultural Materials in the Hispanic World | 3 |
| Select two courses from one of the following options: | | 6 |
| Option I: | | |
| SPAN331 | Spanish Culture, Civilization and Literature I: Medieval Times | |
| SPAN332 | Spanish Culture, Civilization and Literature II: Renaissance and Baroque | |
| SPAN333 | Spanish Culture, Civilization and Literature III: Modern Times | |
| Option II: | | |
| SPAN361 | Latin American Literatures and Cultures I: From Pre-Columbian to Colonial Times | |
| SPAN362 | Latin American Literatures and Cultures II: From Independence to Nation Formation | |
| SPAN363 | Latin American Literatures and Cultures III: From Modernism to Neo-Liberalism | |
| SPAN4xx | Two literature or civilization courses at the 4xx level. | 6 |
| **Total Credits** | | **21** |

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# OPPORTUNITIES

## Study Abroad

For information on study abroad programs see the program advisor and/or the Education Abroad website http://globalmaryland.umd.edu/offices/education-abroad/.

# Russian Language and Literature

**College of Arts and Humanities**
3215 Jiménez Hall
Phone: 301-405-4025
http://sllc.umd.edu/russian/

The undergraduate major in Russian Language and Literature consists of 40 credits beyond the prerequisite of Elementary Russian (RUSS101 , RUSS102 or equivalent). Many students pursue a double major or double

degree in Russian and another discipline, such as international relations, business, history, economics, journalism, engineering, etc. Russian students have the opportunity to live in St. Mary's Language House, and the majority of majors participate in study abroad. Native or heritage speakers wishing to enroll in Russian courses or major in Russian should consult the undergraduate advisor. Students interested in enrolling in a course that appears closed or that has a waitlist are strongly encouraged to contact the faculty member or undergraduate advisor for Russian for permission to enroll.

# PROGRAMS

## Major

- Russian Language and Literature Major (p. 229)

## Minor

- Russian Studies Minor (p. 230)

# ADVISING

**Advisor:** Ms. Zhanna Vernola, vernola@umd.edu

To review the academic plan for this major, go to: http://arhu.umd.edu/academicsadvising/academic-plans/.

# OPPORTUNITIES

## Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding juniors and/or seniors to display their research projects. The forum takes place in late April in the Language House (St. Mary's).

## Internships

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information, see the SLLC website: http://sllc.umd.edu.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers a variety of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

The Russian program, through a generous gift from Professor Emeritus Mikhail Brin, offers *The Maya Brin Scholarship in Cultural Competence* to help students pursue advanced language and cultural competence in Russian. One to two awards are given each year, the amount varies depending on funds available.

## Awards and Recognition

The Russian Program inducts outstanding students each year into the National Slavic Honor Society, *Dobro Slovo*, and awards a *Maya Brin Prize for Excellence in Russian* to a top student each year that carries with it a $500 prize.

The UG Committee of the School of Languages, Literatures and Cultures organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

# Russian Language and Literature Major

**Program Director:** Cynthia L. Martin, Ph.D., Associate Professor of Russian

The undergraduate major in Russian Language and Literature consists of 40 credits beyond the prerequisite of Elementary Russian (RUSS101, RUSS102 or equivalent). Many students pursue a double major or double degree in Russian and another discipline, such as international relations, business, history, economics, journalism, engineering, etc. Russian students have the opportunity to live in St. Mary's Language House, and the majority of majors participate in study abroad. Native or heritage speakers wishing to enroll in Russian courses or major in Russian should consult the undergraduate advisor. Students interested in enrolling in a course that appears closed or that has a waitlist are strongly encouraged to contact the faculty member or undergraduate advisor for Russian for permission to enroll.

## Placement in Courses

When registering for a Russian course for the first time, the system will require that you have taken the World Language Placement. For information about the World Language Placement, go to: http://arhu.umd.edu/academics/world-language-placement/. Please consult with the Russian advisor or Program Head, as well.

## Program Learning Outcomes

1. Russian majors will be able to communicate effectively in spoken Russian in a broad range of everyday situations and contexts.
2. Russian majors will communicate effectively in written Russian in essays on a range of topics.
3. Russian majors will demonstrate fundamental knowledge of the culture(s) of the Russian Federation (literature, history, art, cuisine, traditions, etc.).

# REQUIREMENTS

Students must take language-acquisition courses sequentially. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Requirements** | | |
| RUSS201 | Intermediate Russian I | 5 |
| RUSS202 | Intermediate Russian II | 5 |
| RUSS301 | Advanced Russian I | 3 |
| RUSS302 | Advanced Russian II | 3 |
| RUSS 3xx | One additional course at the 3xx level | 3 |
| RUSS401 | Advanced Russian Composition | 3 |
| RUSS402 | Practicum in Written Russian | 3 |
| RUSS4xx | Select one additional course at the 4xx level | 3 |
| RUSS | Two RUSS electives | 6 |

| | |
|---|---|
| Select two RUSS3xx or RUSS4xx level electives [1] | 6 |
| **Total Credits** | **40** |

[1] Must be taught in Russian

*Notes:* One supporting course outside the department (at the 3xx or 4xx level) may be counted toward the major with an advisor's prior approval.

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# OPPORTUNITIES

## Study Abroad

Students majoring in Russian Studies are encouraged to spend a summer or a semester abroad. For information on study abroad programs see http://globalmaryland.umd.edu/offices/education-abroad/.

# Russian Studies Minor

**College of Arts and Humanities**
School of Languages, Literatures, and Cultures
http://russian.umd.edu

**Russian Program Head:** Cynthia Martin, Ph.D. (cmartin@umd.edu)

The Minor in Russian Studies is a series of five courses to be chosen in consultation with the departmental advisor. The completion of a Minor in Russian Studies provides students with a broad background in Russian language, literature, and culture.

To make an appointment or declare a minor, go to: http://arhu.umd.edu/academics/undergraduate-studies/minors/.

# REQUIREMENTS

Prerequisites for the minor: RUSS102 (Elementary Russian) or the equivalent as determined by the department

| Course | Title | Credits |
|---|---|---|
| Select fifteen credits/five courses of the following: [1] | | 15 |
| Courses taught in Russian: | | |
| RUSS201 | Intermediate Russian I | |
| RUSS202 | Intermediate Russian II | |
| RUSS211 | Applied Russian Phonetics | |
| RUSS301 | Advanced Russian I | |
| RUSS302 | Advanced Russian II | |
| RUSS303 | Russian Conversation: Functional Skills | |
| RUSS321 | Survey of Russian Literature I | |
| RUSS322 | | |
| RUSS381 | | |
| RUSS382 | | |
| RUSS401 | Advanced Russian Composition | |
| RUSS402 | Practicum in Written Russian | |
| RUSS403 | Russian Conversation: Advanced Skills | |
| RUSS404 | Practicum in Spoken Russian | |
| RUSS405 | Russian-English Translation I | |
| RUSS406 | | |
| RUSS409 | Selected Topics in Russian Language Study | |
| RUSS411 | Linguistic Analysis of Russian I | |
| RUSS412 | | |
| RUSS433 | | |
| Courses in English: | | |
| RUSS221 | | |
| RUSS222 | | |
| RUSS281 | Russian Language and Pre-Revolutionary Culture | |
| RUSS282 | | |
| RUSS298 | Special Topics in Russian Language and Literature | |
| RUSS328 | 19th Century Russian Literature in Translation | |
| RUSS398 | Selected Topics in Russian Language and Literature | |
| RUSS439 | Selected Topics in Russian Literature | |
| **Total Credits** | | **15** |

[1] Note that in most cases, five courses of 3-credits each will fulfill the 15-credit requirement. However, RUSS201 and RUSS202 are 5 credit courses. If a student chooses to count these two courses as part of the minor, they are still required to complete three additional courses (for a total of five courses).

- Courses taken through Study Abroad programs may be applied.
- A minimum of six credits must be earned from courses in Russian.
- A minimum of nine credits must be at the 3xx or 4xx level.
- Transfer credits (from study abroad or another US institution) may count toward the minor with approval of the department. In most cases, a maximum of six transfer credits will be approved.
- All courses counting toward the minor must be passed with a "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- Substitutions of other departmental offerings may be approved by the advisor.

# ADVISING

Oversight of the minor program falls under the normal academic processes of the Russian program in the School of Languages, Literatures, and Cultures. The undergraduate advisor is responsible for ensuring that students are properly advised and that records are appropriately kept. For information on the Russian program, including advising, please visit http://sllc.umd.edu/russian/.

# Spanish Language, Literatures, and Culture

**College of Arts and Humanities**
2215 Jiménez Hall
Phone: 301-405-6441
http://sllc.umd.edu/spanish/

The signature of our department is its ability to put into play the singularity of literary and linguistic experiences in relation to politics and philosophy. By rethinking conventional historical, cultural and language boundaries across disciplines, our undergraduate and graduate programs critically engage different archives across the Americas, the Latina/o United States, the Luso-Brazilian world, and Spain in its Iberian and transatlantic contexts. Our intellectual agenda involves diverse forms of community and civic engagement. With a hemispheric and international perspective, our program fosters both critical and creative work. Our graduates are prepared for diverse career tracks in education, business, government, law, medicine, the arts, and social work, among others.

## PROGRAMS

### Major

- Spanish Language, Literatures, and Culture Major (p. 231)

### Minors

- Spanish Minor 1: Literature, Linguistics, and Culture (p. 235)
- Spanish Minor 2: Language, Culture, and Professional Contexts (p. 234)
- Spanish Minor 3: Heritage Language and Latina/o Culture (p. 233)

## ADVISING

**Spanish Undergraduate Advisor:** M. Christopher Lewis
2211 Jiménez Hall
Phone: 301-405-6556
spap-advise@umd.edu

**Heritage Students Advisor:** Evelyn Canabal-Torres
ecanabal@umd.edu

## OPPORTUNITIES

### Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding juniors and/or seniors to display their research projects. The forum takes place in late April in the Language House (St. Mary's).

### Internships

Each fall semester, SLLC organizes a Language Career and Internship Fair (https://careers.umd.edu/events/fall-career-fairs-recruiting-events/) in conjunction with the UMD Career Center.

The Department of Spanish and Portuguese (SPAP) offers majors the possibility of completing an internship for SPAP credits. For more information, see the SPAP internship webpage: http://sllc.umd.edu/fields/spanish/undergraduate/internships/.

### Honors Program

The Spanish honors program provides students with an exciting opportunity to develop an area of special interest in consultation with faculty members.

For information, see http://sllc.umd.edu/fields/spanish/undergraduate/honors/.

### Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers a variety of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

### Awards and Recognition

The Department of Spanish and Portuguese promotes student work in the language through a yearly awards program to recognize student achievement in the language. These are presented at the Spring awards ceremony. For information, visit: http://sllc.umd.edu/fields/spanish/undergraduate/spanish-portuguese-program-awards/.

## Spanish Language, Literatures, and Culture Major

**Undergraduate Program Director:** Ana Patricia Rodríguez, Ph.D.
**Academic Advisor:** Chris Lewis, Ph.D.
**Heritage Language Advisor:** Evelyn Canabal-Torres, Ph.D.

The undergraduate major in Spanish Language, Literatures, and Cultures consists of 36 credits of coursework beyond the intermediate prerequisite level, with an additional supporting area (nine credits). All students will take a core of four courses and a three-course literature/culture sequence focused on Spain or Latin America. The remaining coursework will come from one of three tracks: (1) Literature, Culture, and Media; (2) Linguistics, Culture, and Education; or (3) Language, Culture, and Professional Contexts.

### Placement in Courses

All students new to The School of Languages, Literatures, and Cultures (SLLC) courses must take the online World Language Placement before registering for classes. Visit http://arhu.umd.edu/academics/world-language-placement/ for more information.

### Double Major/Double Degree

A student may wish to fulfill the major requirements in two chosen fields. If the two majors do not belong to the same college, the requirements of both colleges must be met. The courses for the other major will fulfill the Spanish Supporting Courses requirement. A double major may be earned with completion of all requirements and a total of 120 credits. A double degree may be awarded with completion of all requirements and a total of 150 credits. The student must decide on a primary and a secondary major. Academic decisions for each student are made by the primary college. Refer to Second Majors and Second Degrees (p. 77) for full details.

### Program Learning Outcomes

Students who complete the requirements for the major in Spanish can expect to be able to speak, read, write, and understand Spanish at a

level that would allow them to communicate with native speakers, to recognize and interpret the diverse cultural perspectives and products of the Spanish-speaking world, and to be culturally sensitive members of society. Students will acquire the following knowledge and skills:

1. Demonstrate understanding and knowledge of varied aspects of the cultures of the Spanish-speaking world and act in appropriate and culturally sensitive ways.
2. Show competence in speaking, reading, writing, and understanding Spanish as a way to communicate with other cultures.
3. Analyze and interpret a variety of texts and traditions from diverse Spanish-speaking cultures, including that of the United States.
4. Communicate effectively in Spanish both orally and in writing on a range of topics.
5. Conduct research in Spanish in the areas of language, literature, and culture.
6. Demonstrate bilingual functionality and therefore increase their marketability and performance in the work place.

To declare a major in Spanish, students should meet with the undergraduate advisor to begin the process.

# REQUIREMENTS

## Prerequisites

11 credits (or equivalent knowledge)

| Course | Title | Credits |
|---|---|---|
| SPAN103 | Intensive Elementary Spanish | 4 |
| SPAN203 | Intensive Intermediate Spanish | 4 |
| SPAN204 | Spanish Grammar Review | 3 |
| **Total Credits** | | **11** |

## Core sequence

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| SPAN207 | Reading and Writing in Spanish | 3 |
| or SPAN206 | Spanish for Heritage Speakers I | |
| SPAN301 | Advanced Grammar and Composition I | 3 |
| or SPAN306 | Spanish for Heritage Speakers II | |
| SPAN303 | Approaches to Cultural Materials in the Hispanic World | 3 |
| SPAN311 | Advanced Communication I [1] | 3 |
| or SPAN316 | Spanish Translation I | |
| **Select one of the following sequences:** | | **9** |
| Sequence 1: | | |
| SPAN331 | Spanish Culture, Civilization and Literature I: Medieval Times | |
| SPAN332 | Spanish Culture, Civilization and Literature II: Renaissance and Baroque | |
| SPAN333 | Spanish Culture, Civilization and Literature III: Modern Times | |
| Sequence 2: | | |
| SPAN361 | Latin American Literatures and Cultures I: From Pre-Columbian to Colonial Times | |
| SPAN362 | Latin American Literatures and Cultures II: From Independence to Nation Formation | |
| SPAN363 | Latin American Literatures and Cultures III: From Modernism to Neo-Liberalism | |
| **Tracks** | | **15** |
| Select one of the following Tracks: | | |
| Track 1: Spanish and Latin American Literature, Culture, and Media | | |
| Track 2: Spanish Linguistics, Culture, and Education | | |
| Track 3: Spanish Language, Culture, and Professional Contexts | | |
| **Supporting Area** | | |
| Select 9 credits in a single area other than Spanish, 6 of which must be at the 3xx or 4xx level, all with the approval of the Spanish advisor [2] | | 9 |
| **Total Credits** | | **45** |

1 Not intended for native, near native, or fluent speakers.
2 Students should discuss their choice of supporting area with the Spanish advisor early on in their Spanish studies.

# Tracks

## Track 1: Spanish and Latin American Literature, Culture, and Media (15 Credits)

This option provides greater expertise in Spanish or Latin American literature, culture, and media. Students will take four 400-level Spanish or Latin American literature, culture, and media courses at a minimum and one class from the offerings in language, culture, and professional contexts as follows:

| Course | Title | Credits |
|---|---|---|
| Select one of the following: | | 3 |
| SPAN318 | Translation of Technical Texts | |
| SPAN370 | Spanish for Business I | |
| SPAN371 | Spanish for the Health Professions | |
| SPAN372 | Spanish and the Law | |
| SPAN373 | Spanish in the Media | |
| SPAN374 | Spanish in the Community | |
| SPAN375 | Spanish in the Life Sciences | |
| SPAN480 | Spanish for Business II | |
| Select four 4xx-level courses in Spanish or Latin American Literature, Culture, and Media | | 12 |
| **Total Credits** | | **15** |

## Track 2: Spanish Linguistics, Culture, and Education

This option provides greater expertise in Hispanic linguistics: three upper-level courses in linguistics and two courses from Spanish or Latin American Literature and Culture. It is also the partner program for Secondary Education.[1]

| Course | Title | Credits |
|---|---|---|
| SPAN325 | Hispanic Linguistics I: Grammar and Society | 3 |
| SPAN425 | Hispanic Linguistics II: Structures of Spanish | 3 |
| SPAN426 | Hispanic Linguistics III: Language in Use | 3 |
| Select two 4xx-level courses in Spanish or Latin American Literature, Culture, and Media | | 6 |
| **Total Credits** | | **15** |

[1] The approved program in Spanish and Secondary Education requires 2 upper-level courses in literature and culture along with the three linguistics courses this option provides.

### Track 3: Spanish Language, Culture, and Professional Contexts

This option combines courses in professional areas to provide a better understanding of professional language environments: three upper-level courses from the language, culture, and professional contexts area and two classes from the offerings in language, culture, and media.

| Course | Title | Credits |
|---|---|---|
| **Select two of the following courses in Spanish in Language, Culture, and Professional Contexts:** | | **6** |
| SPAN318 | Translation of Technical Texts | |
| SPAN370 | Spanish for Business I | |
| SPAN371 | Spanish for the Health Professions | |
| SPAN372 | Spanish and the Law | |
| SPAN373 | Spanish in the Media | |
| SPAN374 | Spanish in the Community | |
| SPAN375 | Spanish in the Life Sciences | |
| **Select one of the following:** | | **3** |
| SPAN422 | Intercultural Communication and Negotiation | |
| SPAN480 | Spanish for Business II | |
| Select two 4xx-level courses in Spanish or Latin American Literature, Culture, and Media | | 6 |
| **Total Credits** | | **15** |

## Courses for Heritage Learners

Heritage learners and students from homes where Spanish is spoken or who have had in-depth exposure to Spanish take a series of courses designed to enhance their skills:

| Course | Title | Credits |
|---|---|---|
| SPAN206 | Spanish for Heritage Speakers I | 3 |
| SPAN306 | Spanish for Heritage Speakers II | 3 |
| SPAN307 | Oral Communication Skills for Heritage Speakers of Spanish | 3 |

- Placement in courses for heritage learners is determined by speaking with the Spanish advisor.
- Native speakers and all others with the ability to begin coursework at a higher level should speak with the undergraduate advisor for course substitutions.

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

# GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# OPPORTUNITIES

## Study Abroad

All students majoring in Spanish are encouraged to study abroad in a Spanish-speaking environment. The program advisor will review all proposed course sequences before the study abroad experience and determine equivalencies after official transcripts have been received by UMD (students should expect to present samples of work done abroad to advisor).

For information on study abroad programs, see the Education Abroad website: http://globalmaryland.umd.edu/offices/education-abroad/.

## Combination of the Spanish Major and Teacher Certification

Students may combine the Linguistics, Culture, and Education track with a second major in Foreign Language Education to earn teacher certification. Students must take the California Achievement Test to become eligible for admission to the College of Education. Information and Declaration of Major forms can be found in room 1210 of the Benjamin Building. A graduate program in Education for teacher certification is available to students who receive a B.A. in Spanish from our department.

***Note:*** All courses must be in Spanish.

## Spanish Minor 3: Heritage Language and Latina/o Culture

**College of Arts and Humanities**
School of Languages, Literatures, and Cultures (SLLC)
http://sllc.umd.edu/spanish/

**Undergraduate Program Director:** Ana Patricia Rodríguez, Ph.D.
**Academic Advisor:** Chris Lewis, Ph.D.
**Heritage Language Advisor:** Evelyn Canabal-Torres, Ph.D.

The undergraduate minor in Spanish consists of three options, all of which require 18 credits of coursework beyond the intermediate prerequisite level and one of which the student must choose as a course of study. These three minors are: (1) Spanish Minor 1: Literature, Linguistics, and Culture; (2) Spanish Minor 2: Language, Culture, and Professional Contexts; and (3) Spanish Minor 3: Heritage Language and Latina/o Culture.

To declare a minor in Spanish, students should meet with the undergraduate advisor to begin the process.

## Placement in Courses

All students new to SLLC courses must take the online World Language Placement before registering for classes. For more information visit: http://arhu.umd.edu/academics/world-language-placement/.

## REQUIREMENTS

Prerequisites: SPAN103, SPAN203, SPAN204, or equivalent.

| Course | Title | Credits |
|---|---|---|
| SPAN206 | Spanish for Heritage Speakers I | 3 |
| SPAN306 | Spanish for Heritage Speakers II | 3 |
| SPAN303 | Approaches to Cultural Materials in the Hispanic World | 3 |
| SPAN311 | Advanced Communication I | 3 |
| or SPAN316 | Spanish Translation I | |
| **Select one of the following:** | | **3** |
| SPAN307 | Oral Communication Skills for Heritage Speakers of Spanish | |
| SPAN325 | Hispanic Linguistics I: Grammar and Society | |
| SPAN331 | Spanish Culture, Civilization and Literature I: Medieval Times | |
| SPAN332 | Spanish Culture, Civilization and Literature II: Renaissance and Baroque | |
| SPAN333 | Spanish Culture, Civilization and Literature III: Modern Times | |
| SPAN361 | Latin American Literatures and Cultures I: From Pre-Columbian to Colonial Times | |
| SPAN362 | Latin American Literatures and Cultures II: From Independence to Nation Formation | |
| SPAN363 | Latin American Literatures and Cultures III: From Modernism to Neo-Liberalism | |
| **Select one of the following:** | | **3** |
| One 3xx or 4xx-level course in Language, Culture, and Professional Contexts: [1] | | |
| SPAN318 | Translation of Technical Texts | |
| SPAN370 | Spanish for Business I | |
| SPAN371 | Spanish for the Health Professions | |
| SPAN372 | Spanish and the Law | |
| SPAN373 | Spanish in the Media | |
| SPAN374 | Spanish in the Community | |
| SPAN375 | Spanish in the Life Sciences | |
| SPAN422 | Intercultural Communication and Negotiation | |
| SPAN470 | | |
| One 3xx or 4xx-level course in Spanish or Latin American Literature, Culture, and Media | | |
| SPAN425 | Hispanic Linguistics II: Structures of Spanish | |
| or SPAN426 | Hispanic Linguistics III: Language in Use | |
| Cross-listed with USLT and Bilingual Courses | | |
| **Total Credits** | | **18** |

[1] Areas include: Translation, Business, Media, Health, Community Engagement/Education, Law, and Life Sciences.

Note: All courses must be in Spanish

- Heritage learners who place out of SPAN206 can follow the sequence SPAN306 (Spanish for Heritage Speakers II) and SPAN307 (Oral Communication Skills for Heritage Speakers of Spanish).
- Native speakers and all others with the ability to begin coursework at a higher level should speak with the Spanish Undergraduate Advisor for course substitutions.
- It is not permitted for students to take SPAN301 and SPAN303 simultaneously; this is possible only by permission of the Spanish Undergraduate Advisor.
- Two courses (up to six credits) from study abroad may apply toward the minor.

# Spanish Minor 2: Language, Culture, and Professional Contexts

**School of Languages, Literatures, and Cultures (SLLC)**
http://sllc.umd.edu/spanish/

**Undergraduate Program Director:** Ana Patricia Rodríguez, Ph.D.
**Academic Advisor:** Chris Lewis, Ph.D.

The undergraduate minor in Spanish consists of three options, all of which require 18 credits of coursework beyond the intermediate prerequisite level and one of which the student must choose as a course of study. These three minors are: (1) Spanish Minor 1: Literature, Linguistics, and Culture; (2) Spanish Minor 2: Language, Culture, and Professional Contexts; and (3) Spanish Minor 3: Heritage Language and Latina/o Culture.

To declare a minor in Spanish, students should meet with the undergraduate advisor to begin the process.

## Placement in Courses

All students new to SLLC courses must take the online World Language Placement before registering for classes. For more information visit: http://arhu.umd.edu/academics/world-language-placement/.

## REQUIREMENTS

Prerequisites: SPAN103, SPAN203, SPAN204, or equivalent.

| Course | Title | Credits |
|---|---|---|
| SPAN207 | Reading and Writing in Spanish | 3 |
| SPAN301 | Advanced Grammar and Composition I | 3 |
| SPAN303 | Approaches to Cultural Materials in the Hispanic World | 3 |
| SPAN311 | Advanced Communication I | 3 |
| or SPAN316 | Spanish Translation I | |
| Select one of the following: | | 3 |
| SPAN331 | Spanish Culture, Civilization and Literature I: Medieval Times | |
| SPAN332 | Spanish Culture, Civilization and Literature II: Renaissance and Baroque | |
| SPAN333 | Spanish Culture, Civilization and Literature III: Modern Times | |
| SPAN361 | Latin American Literatures and Cultures I: From Pre-Columbian to Colonial Times | |
| SPAN362 | Latin American Literatures and Cultures II: From Independence to Nation Formation | |
| SPAN363 | Latin American Literatures and Cultures III: From Modernism to Neo-Liberalism | |

| | | |
|---|---|---|
| One 3xx or 4xx-level course in Language, Culture, and Professional Contexts: [1] | | 3 |
| SPAN318 | Translation of Technical Texts | |
| SPAN370 | Spanish for Business I | |
| SPAN371 | Spanish for the Health Professions | |
| SPAN373 | Spanish in the Media | |
| SPAN374 | Spanish in the Community | |
| SPAN375 | Spanish in the Life Sciences | |
| SPAN422 | Intercultural Communication and Negotiation | |
| SPAN480 | Spanish for Business II | |
| **Total Credits** | | **18** |

[1] Areas include: Translation, Business, Media, Health, Community Engagement/Education, Law, and Life Sciences.

Note: All courses must be in Spanish

- Heritage learners who place out of SPAN206 can follow the sequence SPAN306 (Spanish for Heritage Speakers II) and SPAN307 (Oral Communication Skills for Heritage Speakers of Spanish).
- Native speakers and all others with the ability to begin coursework at a higher level should speak with the Spanish Undergraduate Advisor for course substitutions.
- It is not permitted for students to take SPAN301 and SPAN303 simultaneously; this is possible only by permission of the Spanish Undergraduate Advisor.
- Two courses (up to six credits) from study abroad may apply toward the minor.

# Spanish Minor 1: Literature, Linguistics, and Culture

**School of Languages, Literatures, and Cultures (SLLC)**
http://sllc.umd.edu/spanish/

**Undergraduate Program Director:** Ana Patricia Rodríguez, Ph.D.
**Academic Advisor:** Chris Lewis, Ph.D.

The undergraduate minor in Spanish consists of three options, all of which require 18 credits of coursework beyond the intermediate prerequisite level and one of which the student must choose as a course of study. These three minors are: (1) Spanish Minor 1: Literature, Linguistics, and Culture; (2) Spanish Minor 2: Language, Culture, and Professional Contexts; and (3) Spanish Minor 3: Heritage Language and Latina/o Culture.

To declare a minor in Spanish, students should meet with the undergraduate advisor to begin the process.

## Placement in Courses

All students new to SLLC courses must take the online World Language Placement before registering for classes. For more information visit: http://arhu.umd.edu/academics/world-language-placement/.

## REQUIREMENTS

Prerequisites: SPAN103, SPAN203, SPAN204, or equivalent.

| Course | Title | Credits |
|---|---|---|
| SPAN207 | Reading and Writing in Spanish | 3 |
| SPAN301 | Advanced Grammar and Composition I | 3 |
| SPAN303 | Approaches to Cultural Materials in the Hispanic World | 3 |
| SPAN311 | Advanced Communication I | 3 |
| or SPAN316 | Spanish Translation I | |
| Select one of the following: | | 3 |
| SPAN325 | Hispanic Linguistics I: Grammar and Society | |
| SPAN331 | Spanish Culture, Civilization and Literature I: Medieval Times | |
| SPAN332 | Spanish Culture, Civilization and Literature II: Renaissance and Baroque | |
| SPAN333 | Spanish Culture, Civilization and Literature III: Modern Times | |
| SPAN361 | Latin American Literatures and Cultures I: From Pre-Columbian to Colonial Times | |
| SPAN362 | Latin American Literatures and Cultures II: From Independence to Nation Formation | |
| SPAN363 | Latin American Literatures and Cultures III: From Modernism to Neo-Liberalism | |
| Select one of the following: | | 3 |
| One 4xx-level course in Spanish or Latin American Literature, Culture, and Media | | |
| SPAN425 | Hispanic Linguistics II: Structures of Spanish | |
| or SPAN426 | Hispanic Linguistics III: Language in Use | |
| **Total Credits** | | **18** |

Note: All courses must be in Spanish

- Heritage learners who place out of SPAN206 can follow the sequence SPAN306 (Spanish for Heritage Speakers II) and SPAN307 (Oral Communication Skills for Heritage Speakers of Spanish).
- Native speakers and all others with the ability to begin coursework at a higher level should speak with the Spanish Undergraduate Advisor for course substitutions.
- It is not permitted for students to take SPAN301 and SPAN303 simultaneously; this is possible only by permission of the Spanish Undergraduate Advisor.
- Two courses (up to six credits) from study abroad may apply toward the minor.

# School of Music

**College of Arts and Humanities**
2110 Clarice Smith Performing Arts Center
Phone: 301-405-5549
http://music.umd.edu

The objectives of the School of Music are:

1. to provide a professional musical education based on a foundation in the liberal arts;
2. to help students understand music as an artistic and cultural product;
3. to prepare the student for professional and graduate work in the field; and
4. to prepare the student to teach music in the public schools.

# PROGRAMS

## Major

- Music Major (p. 237)

## Minors

- Music and Culture Minor (p. 236)
- Music Performance Minor (p. 239)

# ADVISING

Departmental advising is mandatory for all music majors every semester. Please visit http://music.umd.edu/current-students/ to find your appropriate advisor.

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

# OPPORTUNITIES

## Student Societies and Professional Organizations

- Sigma Alpha Iota International Music Fraternity
- Kappa Kappa Psi National Honorary Band Fraternity
- Tau Beta Sigma National Honorary Band Sorority
- Phi Mu Alpha Sinfonia Fraternity of America
- The National Association for Music Education (NAfME)

## Scholarships and Financial Assistance

The School of Music offers merit-based scholarships upon a student's acceptance into the school. Scholarships are based on the quality of the application, which includes the audition.

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Awards and Recognition

The Presser Award is granted each May to a music student with senior standing who demonstrates performance and scholastic excellence, while demonstrating a dedication to leadership, diversity, equity, and inclusion as determined by the music faculty. This award carries with it a significant financial award to help the recipient after their graduation.

## Academic Programs and Departmental Facilities

The UMD School of Music is located in the Clarice Smith Performing Arts Center, a 318,000 square foot campus facility dedicated to Music, Theatre, Dance and Performance Studies. Completed in 2001, the center includes six state-of-the-art performance venues, the Michelle Smith Performing Arts Library, and specialized classroom and rehearsal spaces.

# Music and Culture Minor

http://music.umd.edu/academic-programs/music-culture-minor/

**Faculty Program Supervisor:** William Robin, Ph.D.

The Music and Culture Minor Program offers students from any discipline or major the opportunity to study the ways in which human cultural diversity is represented through music, and to learn how musical practices and values, including those embedded in the teaching and transmission of music, relate to core values in a particular culture or subculture. They will also develop skills in hearing, thinking about, analyzing, discussing, and writing about music and relating it to other aspects of human life.

The Program's curriculum has three components: 1) courses that use the concepts, methods, and theoretical approaches of ethnomusicology (an interdisciplinary field of study that focuses on music in culture and in global contexts) to explore diverse musical cultures and genres; 2) courses that provide more in-depth case studies of particular musical cultures or regions; and 3) world music ensemble courses that complement knowledge about musical practices with embodied knowledge of how they are transmitted and performed.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Any two 2xx-level courses in Musicology and Ethnomusicology including:** [1] | | **6** |
| MUSC204 | Popular Music in Black America | |
| MUSC210 | The Impact of Music on Life | |
| MUSC215 | World Popular Musics and Identity | |
| MUSC220 | Selected Musical Cultures of the World | |
| MUSC289I | Exploring the Power of Musical Performance in Social Engagement | |
| **Three 400-level courses, including at least two of the MUSC438 area studies courses.** [2] | | **9** |
| Recent offerings include: | | |
| MUSC 438D | Music of Bolivia, Peru, and Ecuador | |
| MUSC 438E | Music of the Balkans | |
| MUSC 438K | Music in the Middle East | |
| MUSC 438M | Mexican and Mexican/American Music | |
| MUSC 438S | Music of Southeast Asia | |
| MUSC 438X | Music of China and Japan | |
| The following courses may also be used to satisfy this requirement: | | |
| MUSC435 | | |
| MUSC448 | MUSC448F Music and Film in Cross-Cultural Perspectives | |
| **Performance Courses** [3] | | **4** |
| Four semesters of World Music Ensembles. The following courses have been approved: | | |
| MUSC129 | MUSC129G Ensemble: Balinese Gamelan | |
| MUSC129 | MUSC129K Ensemble: Japanese Koto | |
| MUSC129 | MUSC129L Ensemble: Advanced Japanese Koto | |
| MUSC129 | MUSC129Q Ensemble: Korean Percussion | |
| **Total Credits** | | **19** |

[1] These courses also satisfy General Education requirements, usually in Humanities and Plural Societies.
In consultation with the Coordinator of Ethnomusicology, other courses may be substituted.

[2] Each of these courses covers a different geographic area, and their topics vary from semester to semester (at least three different MUSC438 courses are generally offered over any two-year period).

[3] Other than in the Advanced Japanese Koto class (or other advanced classes that may be added in the future), none of these classes require any prior performance experience. All of these ensemble courses may be repeated for credit, but students must take ensembles from at least two different culture areas. Other performance courses (including dance) may be substituted on a case-by-case basis. Other courses approved as World Music Ensembles are added.

# Policies

No more than six credits may be applied to satisfy both the requirements of this minor and a student's major program. So long as this rule is followed, a student majoring in Music (BM, BME, or BA) may add this minor. No course used to satisfy this minor may be used to satisfy another minor. All courses in the minor must be completed with a minimum grade of C-. A minimum cumulative grade point average of C (2.00) must be obtained across the courses in the minor.

# Music Major

**Director of Undergraduate Studies:** Gretchen Horlacher, Ph.D., ghorlach@umd.edu
**Undergraduate Academic Advisor:** Gideon D'Addio, gdaddio@umd.edu

# Admission to the Major

Admission to all undergraduate music degree programs (B.M., B.A., B.M.E. and Performance Minor) is based on a required School of Music application and performance audition and/or interview before a faculty committee. An application to the School of Music is also required for admission to the Music and Culture Minor. In some instruments/areas, a prescreen recording is also required. The application, audition dates and requirements are available at http://music.umd.edu/admissions/undergraduate/.

# Placement in Courses

Required music courses and private lessons are open to music majors who have completed the specified prerequisites or their equivalents. Lessons may be available for qualified non-music majors, if resources (teacher, time, funding, facilities) are available. All large performing ensembles in the School of Music are open by audition to any student at the university.

# Program Objectives

Objectives of the School of Music are:

1. to provide a professional musical education based on a foundation in the liberal arts;
2. to help students understand music as an artistic and cultural product;
3. to prepare the student for professional and graduate work in the field; and
4. to prepare the student to teach music in the public schools.

# Program Learning Outcomes

## Bachelor of Music

1. Students will understand, analyze, and demonstrate knowledge of fundamental concepts of aural skills.
2. Students will be able to perform a variety of repertoire appropriate for their selected instrument or voice part as a soloist and member of an ensemble.
3. Composition track students will compose original works in a variety of media.
4. Jazz Studies track students will demonstrate in-depth knowledge and skills in improvisation in a variety of styles.
5. Music teacher candidates will have in-depth knowledge of music as described by professional, state, and institutional standards. Teacher candidates can effectively plan classroom-based instruction and activities for their roles as teachers. Teacher candidates' knowledge, skills, and dispositions are applied effectively in practice.

## Bachelor of Arts

1. Students will understand, analyze, and demonstrate knowledge of fundamental concepts of aural skills.
2. Students will be able to perform a variety of repertoire appropriate for their selected instrument as a soloist and member of an ensemble.
3. Composition track students will compose original works in a variety of media.
4. Jazz Studies track students will demonstrate in-depth knowledge and skills in improvisation in a variety of styles.
5. Music teacher candidates will have in-depth knowledge of music as described by professional, state, and institutional standards. Teacher candidates can effectively plan classroom-based instruction and activities for their roles as teachers. Teacher candidates' knowledge, skills, and dispositions are applied effectively in practice.

## Bachelor of Music Education

1. Students will understand, analyze, and demonstrate knowledge of fundamental concepts of aural skills.
2. Students will be able to perform a variety of repertoire appropriate for their selected instrument as a soloist and member of an ensemble.
3. Composition track students will compose original works in a variety of media.
4. Jazz Studies track students will demonstrate in-depth knowledge and skills in improvisation in a variety of styles.
5. Music teacher candidates will have in-depth knowledge of music as described by professional, state, and institutional standards. Teacher candidates can effectively plan classroom-based instruction and activities for their roles as teachers. Teacher candidates' knowledge, skills, and dispositions are applied effectively in practice.

# REQUIREMENTS

# The Bachelor of Music Degree (BM)

Designed for qualified students with extensive pre-college training and potential for successful careers in professional music. B.M. degree programs are offered in the following: Piano, Voice, Violin, Viola, Cello, Bass, Flute, Oboe, Clarinet, Bassoon, Saxophone, Horn, Trumpet, Trombone, Tuba, Euphonium, Percussion, Harp, Composition, Jazz Studies and Theory.

The College of Arts and Humanities requirements of 45 3xx or 4xx-level credits and the Global Engagement Requirement are waived for students majoring in B.M. Degree programs.

## Bachelor of Music (BM) Requirements

In addition to General Education courses, BM students generally complete the following:

- 8 semesters of private lessons (Senior Recital in final semester)
- 8 semesters of large ensemble participation
- 6-8 semesters of small ensemble participation
- 4 semesters of music theory
- 2 semesters of music history
- 1 semester of global music
- 1 semester of 400 level music history elective
- 2 semesters of class piano (Except Piano Majors)
- 1 semester of form and analysis
- 1 semester of conducting
- 1 semester of music literature
- 1 semester of music pedagogy
- 3-5 credits of music electives

The BM programs vary according to instrument or emphasis. Please visit www.music.umd.edu (http://www.music.umd.edu) for specific requirements.

No course grade below the grade of "C-" may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

# The Bachelor of Arts Degree in Music (BA)

Designed for qualified students whose interests include a broader liberal arts experience. The College of Arts and Humanities requirement of 45 3xx or 4xx-level credits and the Global Engagement Requirement apply to all B.A. students. B.A. degree programs are offered in the following: Piano, Voice, Violin, Viola, Cello, Bass, Flute, Oboe, Clarinet, Bassoon, Saxophone, Horn, Trumpet, Trombone, Tuba, Euphonium, Percussion, Harp and Jazz Studies.

## Bachelor of Arts in Music (BA) Requirements

In addition to General Education courses, BA Music students generally complete the following:

- 5 semesters of private lessons (Senior Recital in final semester)
- 5 semesters of ensemble participation
- 4 semesters of music theory
- 2 semesters of music history
- 1 semester of global music
- 2 semesters of class piano (Except Piano Majors)
- 1 semester of form and analysis
- 6 credits of music electives

The BA programs vary according to instrument or emphasis. Please visit www.music.umd.edu (http://www.music.umd.edu) for specific requirements.

No course grade below the grade of "C-" may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

# The Bachelor of Music Education Degree (BME)

Designed for qualified students preparing for careers in PreK-12 teaching of music, the Bachelor of Music Education (BME) offered by the College of Arts and Humanities carries with it a teaching certification from the College of Education. BME degrees are offered with concentrations in either Instrumental Music Education or Choral-General Music Education.

The requirements for a BME are similar to the BM program plus approximately 48 credits in music education. Please visit www.music.umd.edu (http://www.music.umd.edu) for specific requirements.

## Bachelor of Music Education (BME) Requirements

In addition to General Education requirements, Music Education students generally complete the following (for a total of 134-140 credits):

### Bachelor of Music Education-Instrumental Track

- 7 semesters of private lessons (Senior Recital in final semester)
- 7 semesters of large ensemble participation
- 4 semesters of music theory
- 2 semesters of music history
- 1 semester of 400 level music history elective
- 2 semesters of class piano (Except Piano Majors)
- 1 semester of conducting
- 1 semester of global music
- 27 credits MUED class instruments and field experience
- 6 credits EDHD Human Development
- 3 credits TLPL Education Policy Studies
- 2 credits MUED474 Pre-Student Teaching
- 6 credits MUED484 Student Teaching in Elementary School: Music
- 6 credits MUED494 Student Teaching in Secondary School: Music

Please visit www.music.umd.edu (http://www.music.umd.edu) for specific requirements.

No course grade below the grade of "C-" may count toward the major. An overall GPA of 2.75 in the major is required for graduation.

### Bachelor of Music Education-Choral/General Track

- 7 semesters of private lessons (Senior Recital in final semester)
- 7 semesters of large ensemble participation
- 4 semesters of music theory
- 4 semesters of class piano (Except Piano Majors who take voice and upper level piano)
- 2 semesters of music history
- 1 semester of 400 level music history elective
- 1 semester of conducting
- 1 semester of global music
- 4 credits MUSC class instrument and vocal diction
- 19 credits MUED class instruments and field experience
- 6 credits EDHD Human Development
- 3 credits TLPL Education Policy Studies
- 2 credits MUED474 Pre-Student Teaching
- 6 credits MUED484 Student Teaching in Elementary School: Music
- 6 credits MUED494 Student Teaching in Secondary School: Music

Please visit www.music.umd.edu (http://www.music.umd.edu) for specific requirements.

No course grade below the grade of "C-" may count toward the major. An overall GPA of 2.75 in the major is required for graduation.

## GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Music Performance Minor

http://music.umd.edu/academic-programs/music-performance-minor/

**Minor Advisor:** Gideon D'Addio, gdaddio@umd.edu

This minor provides students with high-level training in instrumental or vocal performance. Four semesters of individual study are taken concurrently with four semesters of ensemble. A music theory course and a music history course provide basic historical and theoretical background in support of performance studies.

Admission to the minor in music performance is based on a required performance audition before a faculty committee prior to enrolling in the minor. Audition information, including requirements, can be found at http://music.umd.edu/admissions/undergraduate/.

Students who fulfill minor requirements will receive a minor on the official transcript. Please contact the School of Music student services team for more information.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| MUSP302 | Music Performance | 2 |
| MUSP303 | Music Performance | 2 |
| MUSP402 | Music Performance | 2 |
| MUSP403 | Music Performance | 2 |
| Select four semesters of ensemble of the following: | | 4 |
| MUSC129 | Ensemble | |
| MUSC229 | Ensemble | |
| MUSC329 | Ensemble | |
| MUSC140 | Music Fundamentals I | 3 |
| Any 1xx- or 2xx-level courses in Musicology and Ethnomusicology including: | | 3 |
| MUSC130 | What Does Music Mean? | |
| MUSC204 | Popular Music in Black America | |
| MUSC205 | History of Popular Music, 1950-Present | |
| MUSC210 | The Impact of Music on Life | |
| MUSC215 | World Popular Musics and Identity | |
| MUSC220 | Selected Musical Cultures of the World | |
| MUSC289I | Exploring the Power of Musical Performance in Social Engagement | |
| **Total Credits** | | **18** |

No course grade below the grade of "C-" may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

# School of Theatre, Dance, and Performance Studies

**College of Arts and Humanities**
2806 Clarice Smith Performing Arts Center
Phone: 301-405-6676
tdps@umd.edu
http://tdps.umd.edu

The unique structure of the School of Theatre, Dance, and Performance Studies provides the opportunities of a larger community in which students can interconnect and collaborate between the different degree programs. While the degree programs in the dance and theatre disciplines retain their individuality, the school affords the inter-disciplinary prospects that enable landmark creativity and scholarship to flourish. Dynamic interaction between faculty, staff, and students encourages innovative ideas and new initiatives.

## PROGRAMS

### Majors

- Dance Major (p. 240)
- Theatre Major (p. 242)

### Minor

- Arts Leadership Minor (p. 244)

## ADVISING

### Dance

The College of Arts and Humanities has a dual track advising system where students meet with college advisors to discuss their ARHU and general education requirements and meet with departmental advisors to discuss the major requirements. The Dance Major requires mandatory advising each semester to keep in touch with our student base and assist majors and double majors with curricular and co-curricular choices. Advising procedures and instructions to sign up for an advising appointment can be found on the TDPS - B.A. Dance website at http://tdps.umd.edu/academic-programs/ba-dance/.

Or, you may contact:

Susan Miller, Director of Undergraduate Studies, Coordinator of Student Services and Academic Advisor
smille13@umd.edu

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

### Theatre

The College of Arts and Humanities has a dual track advising system where students meet with college advisors to discuss their general education and college requirements and with departmental advisors to

discuss their major requirements. The Theatre major requires mandatory advising each semester to keep in touch with our student base and assist majors and double majors with curricular and co-curricular choices. Advising procedures and instructions to sign up for an advising appointment can be found on the TDPS - B.A. Theatre website at http://tdps.umd.edu/academic-programs/ba-theatre/.

Or, you may contact:

Susan Miller, Susan Miller, Director of Undergraduate Studies, Coordinator of Student Services and Academic Advisor
smille13@umd.edu

To review the academic plan for this major, go to http://arhu.umd.edu/academicsadvising/academic-plans/.

# OPPORTUNITIES

# Dance

## Internships

Dance majors may register for up to 6 credits of internship work under the DANC286 or DANC386 course number. Internships may be done during the academic year or during the summer. Internships may be done for credit and salary, or, an internship may be done just for credit. Information about the internship procedure may be found on the School of Theatre, Dance, and Performance Studies website. Internships are not required but are strongly encouraged.

## Scholarships and Financial Assistance

Scholarships and financial assistance may be awarded to prospective and enrolled students through a number of Creative and Performing Arts (CAPA) scholarships and other Dance Scholarship Award Funds.

For further information, visit the TDPS website at http://tdps.umd.edu and select "Scholarships and Awards" on the BA Dance page.

## Academic Programs and Departmental Facilities

Dance is housed in the Clarice Smith Performing Arts Center, a state-of-the-art performing arts center comprised of ten interconnected structures occupying 318,000 square feet and situated on a 17-acre site at the northwest end of the campus. The center is designed to serve the dance, theatre, music, and programs of the university and also houses the Michelle Smith Performing Arts Library. With 30 classrooms, 50 practice and rehearsal rooms, and fully outfitted costume, electric, scenic production, paint, and properties shops, the center serves more than 5,000 students, 200 faculty and staff, and numerous regional, national, and international audiences and professionals. For further information, visit the Clarice Smith Performing Arts Center website at http://theclarice.umd.edu.

# Theatre

## Internships

Theatre majors may register for up to 6 credits of internship work under the THET286 or THET386 course number. Internships may be done during the academic year or during the summer. Internships may be done for credit and salary, or, an internship may be done just for credit. Information about the internship procedure may be found on the School of Theatre, Dance, and Performance Studies website. Internships are not required but are strongly encouraged.

## Scholarships and Financial Assistance

Scholarships and financial assistance may be awarded to prospective and enrolled students through a number of Creative and Performing Arts (CAPA) scholarships, and various Theatre Scholarship/Awards Funds. For further information visit the TDPS website at http://tdps.umd.edu and select "Scholarships and Awards" on the BA Theatre page.

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Awards and Recognition

At the spring TDPS commencement ceremony, the Charles B. Hale Award is presented to the two members of the senior class who have done the most for the advancement of dramatic art while undergraduates at the University of Maryland.

## Academic Programs and Departmental Facilities

Theatre is housed in the Clarice Smith Performing Arts Center, a state-of-the-art performing arts center comprised of ten interconnected structures occupying 318,000 square feet and situated on a 17-acre site at the northwest end of the campus. The center is designed to serve the theatre, music, and dance programs of the university. The center also houses the Michelle Smith Performing Arts Library. With 30 classrooms, 50 practice and rehearsal rooms, and fully outfitted costume, electric, scenic production, paint, and properties shops, the center serves more than 5,000 students, 200 faculty and staff, and numerous regional, national, and international audiences and professionals. For further information, visit the Clarice Smith Performing Arts Center website at http://theclarice.umd.edu.

# Dance Major

**Program Director:** Maura Keefe, Ph.D.

The undergraduate curriculum, which leads toward a B.A. degree in Dance, offers students a solid foundation in the core areas of the discipline as well as insights into cross-disciplinary fields of study.

Coursework is designed to help students become skillful, articulate, and expressive movers; to enable students to find their own voice as creative artists, develop the ability to work effectively in a collaborative environment, and to grow in their conceptual understanding of dance as an art form.

The cornerstones of the curriculum are foundational coursework in the first two years. The project based learning or advanced seminar experiences in the senior year engage students in interdisciplinary and/or cross-cultural work and offer in-depth exploration of a theme from a performance, choreographic, and theoretical perspective. Students select an area of emphasis in performance and choreography, production, or education.

Foundational sequences in technique , creative process, and choreography, which integrate a conceptual understanding of dance as an art form, are at the core of the discipline.  Through these fundamental practices of the discipline, students gain, not only necessary skills, but also an embodied knowledge of the field.

The dance faculty is composed of a number of distinguished teachers, choreographers, performers, and scholars, each one a specialist in

his or her own field. Visiting artists and guest artists make additional contributions to the program. There are performance and choreographic opportunities for all dance students, ranging from informal workshops to fully mounted concerts both on and off campus.

Courses offered by this department may be found under the following acronym(s): DANC, TDPS

# Admission to the Major

An audition is not required to become a dance major. For more information, contact the Director of Undergraduate Studies and Coordinator of Student Services, Susan Miller, at smille13@umd.edu.

# Program Objectives

## Our Mission

The University of Maryland School of Theatre, Dance, and Performance Studies advances and transforms the research and practice of theatre, dance, and performance studies through its commitment to excellence and innovative education in the performing arts.

## Our Vision

We envision a school that serves as a national model for collaboration, innovation, and entrepreneurship in the performing arts. The undergraduate curriculum, which leads toward a B.A. degree in Dance, offers students a solid foundation in the core areas of the discipline as well as insights into cross-disciplinary fields of study. Coursework is designed to help students become skillful, articulate, and expressive movers; to enable students to find their own voice as creative artists, develop the ability to work effectively in a collaborative environment, and to grow in their conceptual understanding of dance as an art form in relation to the other arts.

# Program Learning Outcomes

1. Develop the knowledge and research skills to explore the dance past in writing, orally, and in performance.
2. Demonstrate growing technical understanding and fluency in dance technique.
3. Participate in the creative process through the creation and interpretation of choreography.
4. Apply interdisciplinary research methods to dance scholarship and choreography.
5. Demonstrate the ability to understand cultural and historical texts in relation to dance forms.
6. Apply musical knowledge to movement and choreography.
7. Design choreographic movement and structures.

# REQUIREMENTS

Students must complete 49 credits. The following courses or areas are required:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| DANC218 | Modern Dance I | 3 |
| DANC219 | Modern Dance II | 3 |
| DANC318 | Modern Dance III | 3 |
| DANC319 | Modern Dance IV | 3 |
| DANC109 | Choreography I: Improvisation | 3 |
| DANC179 | Movement Integration | 2 |
| DANC207 | Choreography II: The Creative Process | 3 |
| DANC383 | Dance History & Theory | 3 |
| DANC304 | Dance Education I: Foundations | 3 |
| TDPS201 | Introduction to Technical Production | 3 |
| TDPS479 | Production Practicum | 1 |
| One of the following: | | 3 |
| DANC488 | Project-Based Learning | |
| OR | | |
| DANC485 | Seminar in Dance | |
| **4 credits of Dance Forms selected from:** | | **4** |
| DANC138 | Global Dance Forms | |
| DANC228 | Ballet I | |
| DANC229 | Ballet II | |
| DANC328 | Ballet III | |
| DANC329 | Ballet IV | |
| **Area of Emphasis** | | **12** |
| **Total Credits** | | **49** |

12 credits of 3xx or 4xx level course work in an area of emphasis in performance and choreography or in production, or education.

# Areas of Emphasis

## Performance and Choreography

Students in the Performance and Choreography area are expected to enroll in a technique class each semester and to be actively engaged in experiences that transition them from the classroom to the stage. Opportunities for engagement include auditioning for student, faculty, and guest artist works, showing works in progress at monthly open showings, and auditioning works for performances.

| Course | Title | Credits |
|---|---|---|
| TDPS479 | Production Practicum [1] | 1 |
| DANC309 | Choreography III: Dance Composition | 3 |
| DANC468 | Dance Repertory | 3 |
| Select an additional 5 credits of the following: | | 5 |
| DANC448 | Modern Dance V [2] | |
| DANC449 | Modern Dance VI [2] | |
| DANC468 | Dance Repertory | |
| DANC420 | Partnering | |
| DANC466 | Laban Movement Analysis | |
| DANC371 | Somatics | |
| DANC310 | | |
| DANC399 | Practicum in Choreography, Production and Performance III | |
| DANC499 | Practicum in Choreography, Production and Performance IV | |
| DANC489 | Special Topics in Dance | |
| Additional courses approved by the program. | | |
| **Total Credits** | | **12** |

[1] This is in addition to the 1 credit required of all majors.

[2] A maximum of a total of 6 credits of Dance DANC448 and DANC449 will count toward the 12 credit area requirement.

### Production

| Course | Title | Credits |
|---|---|---|
| TDPS479 | Production Practicum [1] | 3 |
| Select an additional 9 credits of the following: | | 9 |
| DANC310 | | |
| DANC410 | Technical Theater Production for Dance | |
| THET116 | Fundamentals of Theatrical Design | |
| THET284 | Stage Costume Construction I [2] | |
| THET371 | Scenic Design I [2] | |
| THET383 | Costume Design I [2] | |
| THET377 | Lighting Design for Performance [2] | |
| THET373 | [2] | |
| THET472 | Scene Painting [2] | |
| THET474 | Advanced Stage Management [2] | |
| **Total Credits** | | **12** |

[1] This is in addition to the 1 credit required of all majors.
[2] Permission required courses

### Education

| Course | Title | Credits |
|---|---|---|
| DANC405 | Dance Education II: Education & Policy | 3 |
| DANC371 | Somatics | 3 |
| DANC466 | Laban Movement Analysis (DANC489F::3xx or 4xx level Global Movement Practice) | 3 |
| DANC338 | Dance Techniques | 2 |
| TDPS479 | Production Practicum | 1 |
| **Total Credits** | | **12** |

A grade of "C-" or higher must be attained in all dance courses.

An overall GPA of 2.0 in the major is required for graduation.

## Other Requirements for the Major

### Mid-Point Assessment

The Mid-Point assessment gives the program a mid-course opportunity for learning outcomes assessment. In preparation for the assessment, students prepare a portfolio that includes a resume, samples of their writing, and a DVD with examples of their work in technique and choreography classes. The Mid-Point assessment is a benchmark requirement in the program. All transfer students, as well as students who declare Dance after their first semester on campus, will be assigned an assessment date when they meet with their Dance advisor to develop an academic plan. Students who do not complete the assessment process in their assigned semester will not be permitted to continue in the major. Completion is defined as submission of a portfolio and participation in a scheduled assessment meeting.

The Dance program has mandatory advising each semester. New, re-entering, and transfer students are expected to contact the program, following their admission to the University, for instructions regarding advising and registration procedures. Although entrance auditions are not required, some previous dance experience is highly desirable.

For additional information about the program contact:

Susan Miller
Coordinator of Student Services and Academic Advisor
2810 Clarice Smith Performing Arts Center
University of Maryland
College Park, Maryland 20742
301-405-6694
smille13@umd.edu

## GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Theatre Major

**Program Director:** Maura Keefe, Ph.D.

Small classes, diversity, and a close-knit environment promote a strong sense of community within the Theatre major. An extensive production schedule offers students a myriad of opportunities to practice their craft.

A supportive and stimulating environment fosters creative development and spurs achievement. Our comprehensive curriculum embraces the liberal arts approach to theatre study and cultivates skills - discipline, creativity, self-confidence, and critical thinking - that are valuable in all career fields. Students gain a strong foundation in theatre arts and have the opportunity to tailor the degree to their strengths and interests.

Our performance and design/production faculty members are active in their fields (members of Actors Equity and United Scenic Artists), providing students a vital link to the world of professional theatre. Our history/theory faculty members regularly publish and participate at national and international conferences. Situated in close proximity to the vibrant Washington/Baltimore theatre communities, students have ready access to the best of contemporary and classical productions at more than 80 professional theatres. Through professional affiliations with many of these theatre companies, students enjoy unique opportunities such as internships, workshops, partnership projects, and blended productions.

An audition, portfolio, or interview is not required for admission to the program. Courses offered by this Department may be found under the following acronym(s): THET, TDPS, DANC, AASP, HONR, JAPN, JWST, WMST, ANTH.

## Admission to the Major

An audition/portfolio is not required to become a Theatre major. For more information, contact the Director of Undergraduate Studies and Coordinator of Student Services Susan Miller at smille13@umd.edu.

# Placement in Courses

Many theatre performance and production courses above the sophomore level require an audition, interview, and/or permission of the department.

# Program Objectives

## Our Mission

The University of Maryland School of Theatre, Dance, and Performance Studies advances and transforms the research and practice of theatre, dance, and performance studies through its commitment to excellence and innovative education in the performing arts.

## Our Vision

We envision a school that serves as a national model for collaboration, innovation and entrepreneurship in the performing arts. The theatre program offers a balanced liberal arts education that integrates production, design, and scholarship. The B.A. in Theatre seeks to introduce students to the history, theory, and literature of theatre; to offer them insights into the cultural diversity that has shaped the creation of theatrical forms around the world; to allow them to develop their own aesthetic sensibilities and perspectives as an artist and audience member; and to offer them practical training in the areas of theatre craft, which ranges from design, to directing, and to performance.

# Program Learning Outcomes

1. Students will be able to demonstrate fundamental knowledge of theatre performance, design, history, craft and literature analysis.
2. Students will be able to demonstrate critical and creative thinking skills and the ability to communicate with both written and spoken word and artistic vision.
3. Students will develop the ability to interpret and analyze dramatic texts with critical understanding of content and methodology.
4. Students will expand their awareness of the basic methods and principles for creating a dialogue between theory and practice.
5. Students will develop the ability to work effectively within a collaborative environment.

# REQUIREMENTS

Requirements for the College of Arts and Humanities include a minimum of 3xx or 4xx level credits and the Global Engagement Requirement. Students in the Theatre major prior to the Fall 2009 semester should consult the unit for prior curriculum requirements.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Foundation Series (16 credits):** [1] | | |
| TDPS201 | Introduction to Technical Production [2] | 3 |
| THET116 | Fundamentals of Theatrical Design [2] | 3 |
| THET222 | Foundations of Acting and Performance [2] | 3 |
| THET223 | Text and Context in Western Theatre [2] | 3 |
| TDPS479 | Production Practicum (4-1 credit courses) [2,3] | 4 |
| **Area Menu** | | |
| Students must take courses from each Area as delineated below. Students may enter the Area Menu after completing appropriate prerequisites: | | |
| Performance Area: | | 3 |
| Select three credits | | |
| Design Area: | | 6 |
| Select 6 credits; 3 at the 3xx or 4xx level | | |
| History/Theory: | | 6 |
| THET390 | History of Theatre I | |
| THET391 | Theatre History II | |
| Select 3 credits at 4xx level | | 3 |
| **Supporting Courses** | | |
| Select 15 credits of Supporting Courses [4] | | 15 |
| **Total Credits** | | **49** |

1. Foundation Series courses may be taken in any sequence.
2. THET222, THET223, one credit of TDPS479, and either THET116 or TDPS201 must be completed by the end of the second semester or 30 credits.
3. TDPS479 (4 - 1 credit courses for a total of 4 credit hours) cannot be taken until TDPS201 is completed. TDPS479 must be completed in 3 different areas - costume, scenic, lighting and sound. Students are expected to complete one TDPS479 course by the end of the 2nd semester or 30 credits, and all 4 courses by the end of the 6th semester or 90 credits.
4. 12 credits of THET/TDPS Courses. 12 credits must be 3xx or 4xx level coursework. Supporting course credits may come from the Performance, Design/Production, or History/Theory Area menus OR any combination of the four menus. Students may also petition to their advisor for other suitable courses to be accepted, conditional on course work relating to their area of focus. For course prerequisites contact the Department that is offering the course or check Testudo online (testudo.umd.edu/). For a complete listing of Supporting Courses check the Undergraduate page of the Theatre website at http://tdps.umd.edu/.

Students must take courses from each Area as delineated below. Students may enter the Area Menu after completing appropriate prerequisites.

# Area Menu

## Performance Area

Prerequisite: 3 credits required

Students may only audition twice for each course requiring an audition for enrollment.

| Course | Title | Credits |
|---|---|---|
| THET210 | | |
| THET285 | The Art of Communication and Presentation | 3 |
| THET310 | Voice for the Actor I [1] | 3 |
| THET324 | Character Development [1] | 3 |
| THET325 | Actor's Process I [1] | 3 |
| THET330 | Play Directing I | 3 |
| THET360 | Voice Archetypes | 3 |
| THET411 | Voice for the Actor II [1] | 3 |
| THET420 | Language and the Actor [1] | 3 |
| THET424 | Movement II: Advanced Studies in Movement and Mask Theatre [1] | 3 |
| THET425 | Actor's Process II [1] | 3 |
| THET430 | | |

| | | |
|---|---|---|
| THET451 | Musical Theatre Workshop I [1] | 3 |
| THET452 | Musical Theatre Workshop II [1] | 3 |

[1] Requires an audition

### Design/Production Area

Prerequisites: 6 credits required; three at the 3xx or 4xx level

Some courses require departmental or instructor approval

| Course | Title | Credits |
|---|---|---|
| THET274 | Introduction to Stage Management | 3 |
| THET282 | Stage Makeup | 3 |
| THET284 | Stage Costume Construction I | 3 |
| THET371 | Scenic Design I | 3 |
| THET372 | Stage Property Design | 3 |
| THET373 | | |
| THET377 | Lighting Design for Performance | 3 |
| THET380 | Sound Design | 3 |
| THET383 | Costume Design I | 3 |
| THET384 | Stage Costume Construction II | 3 |
| THET465 | History of Fashion for the Theatre | 3 |
| THET471 | Design Studio in Scenery | 3 |
| THET472 | Scene Painting | 3 |
| THET473 | Rendering for the Theatre II | 3 |
| THET474 | Advanced Stage Management | 3 |
| THET475 | History of Art, Architecture, and Decor for the Theatre | 3 |
| THET477 | Design Studio in Lighting | 3 |
| THET481 | Theatre Graphics II: Computer Assisted Design | 3 |
| THET482 | Scene Painting II | 3 |

### History/Theory Area

Prerequisites: 9 credits required; THET390, THET391, one additional course at 4xx level

| Course | Title | Credits |
|---|---|---|
| THET390 | History of Theatre I | 3 |
| THET391 | Theatre History II | 3 |
| THET408 | Seminar: Theory and Performance Studies | 3 |
| THET488 | Special Topics in Theatre History Before 1800 | 3 |
| THET489 | Special Topics in Theatre History from 1800 to Present | 3 |

All seminars offered at the 4xx/6xx level require undergraduate students to obtain permission from the instructor and to have completed either THET488 or THET489. This includes: THET408/THET608, THET486/THET686, THET498/THET698.

Major requirements include 49 credits of course work in Theatre. Of the 49 credits, at least 28 credit hours must be 3xx or 4xx level. No course with a grade less than "C-" may be used to satisfy major or supporting area requirements. An overall GPA of 2.0 in the major is required for graduation. No course for the major may be taken Pass/Fail or Audit.

## Other Requirements for the Major

As the Area and Supporting Course Menus do not require specific course choices, students may select courses according to their interests and abilities. In consultation with their advisor, students may choose to tailor their degree and create a focus in a specific area of interest to prepare them for the profession or entrance to graduate school.

## GRADUATION PLANS

Click here (https://www.arhu.umd.edu/academics/advising/academic-plans/) for roadmaps for graduation plans in the College of Arts and Humanities.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Arts Leadership Minor

**Program Director:** Maura Keefe, Ph.D.

The minor in Arts Leadership provides students with the opportunity to acquire the practical and strategic skills to become leaders in the arts, whether it be as artists, as entrepreneurs in the business of the arts, or as cultural leaders in government and non-governmental agencies involved in the arts. The primary emphasis will be on arts leadership in not-for-profit environments. Although primarily intended for students majoring in the Arts and Humanities, the minor in Arts Leadership is designed to meet the needs of any student at the University of Maryland with an interest in arts entrepreneurship, arts administration, and arts activism.

Students minoring in Arts Leadership will learn:

- critical, interdisciplinary, and holistic thinking methods necessary to meet the challenges faced by artists, educators, entrepreneurs, institutions, and organizations in national and international artistic settings.
- the fundamentals of cultural policy, stewardship, heritage, programming, and curation, as well of the legal aspects of arts leadership, including copyright.
- practical skills such as grant writing, marketing, and fundraising.
- an appreciation for the importance of diversity in the arts as well as an understanding of the service role that the performing and visual arts perform in the ecology of small communities to transnational institutions.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| ARHU240 | Cultural Institutions of the United States | 3 |
| ENGL398A | Writing for the Arts | 3 |
| or ENGL398N | Writing for Non-Profit Organizations | |
| ARHU440 | Arts Leadership Seminar | 3 |
| Choose 2 from the following courses (6 credits): | | 6 |
| ARHU340 | Financial Entrepreneurship for Arts Leaders | |

| | | |
|---|---|---|
| BMGT355 | Foundations of Marketing for Non Business Majors | |
| ARHU386 | Experiential Learning (ARHU386A or approved equivalent Professional Internship) | |
| **Total Credits** | | **15** |

# College of Behavioral and Social Sciences

2141 Tydings Hall
Phone: 301-405-1679
bsos@umd.edu
http://bsos.umd.edu

**Dean:** Susan Rivera, Ph.D.
**Associate Deans:** Isabella Alcañiz, Ph.D., Meredith Kleykamp, Ph.D., Patricio Korzeniewicz, Ph.D., Katherine Russell, Ph.D.
**Assistant Deans:** Jacinta Kelly, Kim Nickerson, Ph.D.

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The College of Behavioral and Social Sciences at the University of Maryland (BSOS) increases understanding of and pursues innovative solutions to the challenges facing our global community. BSOS draws on its Washington, D.C., and worldwide connections to enrich its teaching, research and service. The BSOS community works to enhance international relations, advance global sustainability, understand societies and cultures and improve the human condition.

In all that we do, BSOS aims to **Be the Solution** to the world's great challenges.

The College of Behavioral and Social Sciences actively practices TerrapinSTRONG values that affirm our mission, culture, and values as a diverse, unified, proud, respectful, inclusive, accountable, and empowered community of people from every background that works to impact positively our globally-connected society.

Students interested in human behavior and in solving human and social problems will find many exciting opportunities through the programs and courses offered by the College of Behavioral and Social Sciences.

# DEPARTMENTS

## Departments and Units

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- Anthropology (p. 254)
- Criminology and Criminal Justice (p. 257)
- Economics (p. 260)
- Geographical Sciences (p. 263)
- Government and Politics (p. 269)
- Hearing and Speech Sciences (p. 273)
- Psychology (p. 277)
- Sociology (p. 287)

# ACADEMIC PROGRAMS

## Majors

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- Anthropology Major (p. 255)
- Criminology and Criminal Justice Major (p. 258)
- Economics Major (p. 261)
- Environmental Science and Policy Major (p. 110)
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- Government and Politics Major (p. 270)
- Hearing and Speech Sciences Major (p. 274)
- Neuroscience Major (BSOS) (p. 279)
- Psychology Major (p. 282)
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## Minors

- African Studies Minor (p. 251)
- Anti-Black Racism Minor (p. 252)
- Black Women's Studies Minor (BSOS) (p. 254)
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- Global Terrorism Studies Minor (p. 268)
- Hearing and Speech Sciences Minor (p. 276)
- International Development and Conflict Management Minor (p. 273)
- Law and Society Minor (p. 277)
- Neuroscience Minor (p. 281)
- Remote Sensing of Environmental Change Minor (p. 268)
- Sociology Minor (p. 289)
- Survey Methodology Minor (p. 290)

## Certificate

- African American and Africana Studies Certificate (p. 249)

# COLLEGE REQUIREMENTS

## Undergraduate Degree Requirements/ Degree Options

- Each student must complete a minimum of 120 hours of credit with at least a 2.0 cumulative grade point average. Courses must include the credits required in the university's general education requirements and the specific major and supporting course and grade requirements of the programs in the academic departments offering bachelor's degrees.
- Students must have a minimum "C" (2.00) cumulative grade point average across all courses used to satisfy major degree requirements.
- Upon entering BSOS as a freshman, transfer, or by major change, students must complete and submit a graduation plan to the college advising office for review and approval.
- In accordance with university policy, fundamental English and Math requirements must be attempted by 30 credits and successfully completed by 60 credits.
- Students must complete 15 upper level credits in the student's final 30 credits.
- All students are responsible for carefully tracking completion of degree requirements using UAchieve. Students are urged to meet with an academic advisor in their major or college if they have any questions. Advising is especially important two semesters before graduation to discuss final graduation requirements.

# ADVISING

Feller Center
2118 and 2148 Tydings Hall

Phone: 301-405-1697

The Feller Center (https://fellercenter.umd.edu) in the College of Behavioral and Social Sciences is your co-located hub for academic advising and career planning.

Academic advising: http://fellercenter.umd.edu/academic-advising/ or bsosadvising@umd.edu

Career planning: http://fellercenter.umd.edu/career-planning/ or bsoscareers@umd.edu

# OPPORTUNITIES

## The Feller Center - Advising and Career Planning

The Feller Center (http://fellercenter.umd.edu) in the College of Behavioral and Social Sciences is your co-located hub for academic advising and career planning.

The **Feller Center Academic Advisors** educate, support, and empower students while setting and communicating academic support and benchmarks for a successful and timely academic journey.

The **Feller Center Career Planning Team** works closely with the BSOS Advising team, faculty and instructors in BSOS, and the BSOS Departments to integrate career exploration and professional development into each student's academic experience. Additionally we complement the services offered by the University Career Center to deliver enhanced services for BSOS majors.

## Departments and Centers

Departments and Research Centers are linked from the College website homepage at http://bsos.umd.edu.

In addition, the college co-sponsors interdisciplinary majors in Environmental Science and Policy (https://ensp.umd.edu), Neuroscience (https://neur.umd.edu), and Social Data Science (https://sdsc.umd.edu).

## Living-Learning Programs

Participating in one of Maryland's living-learning communities is one great way for BSOS students to share their common interests with each other and with faculty in a small, academic, residential community.

The BSOS College is the academic home for four of these living-learning programs (https://bsos.umd.edu/undergraduate/academic-programs/#majors-programs).

## College Honors Program

**Departmental Honors Programs** are offered in each of the departments within the college. Students in a Departmental Honors Program are also members of the campus Honors College.

**Dean's List.** Any student who has passed at least 12 hours of academic work under the regular grading method in the preceding semester, without failure of any course, and with an overall average grade of at least 3.5, will be placed on the Dean's List. The Distinguished Dean's List consists of students who have completed successfully a minimum of 12 credit hours in a semester with a 4.0.

**Honor Societies.** Students who excel in their academic discipline may be selected for membership in an honorary society. Examples include:

- Alpha Kappa Delta -- Sociology
- Alpha Phi Sigma -- Criminal Justice
- Gamma Theta Upsilon -- Geography
- Pi Sigma Alpha -- The National Political Science Honor Society
- Psi Chi -- Psychology

## Student Societies and Professional Organizations

Students who are interested in organizations and honor societies related to their fields of study should consult with departmental websites.

For more information about these student organizations or starting a new student group, please contact the Office of Campus Programs, Adele H. Stamp Student Union, 301-314-7174 or http://terplink.umd.edu.

## Financial Assistance

The college offers scholarship opportunities to current students on a competitive basis. Each scholarship has eligibility criteria. Scholarship information and applications are available on the scholarships page on the BSOS website: https://bsos.umd.edu/undergraduate/undergraduate-scholarships/.

The college also offers student experience funds to help support research, internship, and other extracurricular activities. For more information, please visit: https://bsos.umd.edu/undergraduate/bsos-undergraduate-experience-funds/.

The National Scholarships Office at the University of Maryland provides information on nationally competitive scholarships at the undergraduate (and graduate) level. For more information, please visit: http://scholarships.umd.edu.

The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For more information, visit: http://financialaid.umd.edu.

## Research Units

Undergraduate research is valuable whether or not you plan to be a researcher in the future. BSOS is home to 10 diverse, interdisciplinary departments and many centers and programs, all committed to investigating and improving the human condition. In addition to the opportunities available within the college, BSOS students have access to over 200 research centers (http://www.umd.edu/directories/centers.cfm) on or just off campus at the University of Maryland. **If you are interested in exploring an undergraduate research experience, visit the** Feller Center **(**https://fellercenter.umd.edu/gain-experience/research/**) website for more details.**

## Student Engagement and Service Units

For more information regarding engagement and service opportunities, please visit our website (https://fellercenter.umd.edu/gain-experience/leadership/).

# African American and Africana Studies

**College of Behavioral and Social Sciences**
1119 Taliaferro Hall
Phone: 301-405-1158
http://aaas.umd.edu

The Department of African American and Africana Studies (AAAS) offers three highly-regarded majors:

(1) African American and Africana studies major (https://aaas.umd.edu/undergraduate/major-african-american-studies/) (BA)

(2) African American and Africana studies major with a concentration in Public Policy (https://aaas.umd.edu/undergraduate/major-concentration-public-policy/) (BA)

(3) Social Data Science major with a concentration in African American and Africana studies (https://sdsc.umd.edu/major-requirements/) (BS)

The department offers three dynamic minors:

(1) Black Women's Studies (https://aaas.umd.edu/undergraduate/minor-black-womens-studies/), in collaboration with the university's Harriet Tubman Department of Women, Gender, and Sexuality Studies

(2) Anti-Black Racism (https://aaas.umd.edu/undergraduate/minor-anti-black-racism-0/), in collaboration the College of Arts and Humanities, the School of Public Health, the School of Public Policy, and the School of Education

(3) African Studies (https://aaas.umd.edu/undergraduate/minor-african-studies/)

The department offers a certificate in African American and Africana Studies (https://aaas.umd.edu/undergraduate/certificate-african-american-studies/)

For advanced students, the department offers a combined Bachelor's/Master of Public Policy (https://spp.umd.edu/your-education/masters/dual-degrees/bachelorsmaster-public-policy/) degree

## PROGRAMS

### Major

- African American and Africana Studies Major (p. 250)

### Minor

- African Studies Minor (p. 251)
- Anti-Black Racism Minor (p. 252)
- Black Women's Studies Minor (BSOS) (p. 254)

### Certificates

- African American and Africana Studies Certificate (p. 249)

## ADVISING

The African American and Africana Studies Department has mandatory advising for all AAAS majors.

Undergraduates in good academic standing may enroll in the African American and Africana Studies Department or obtain more information about available options and services by contacting Marshal Washington, the Assistant Program Director, via email at lashram9@umd.edu, via phone at 301-405-1161, or in person at the African American and Africana Studies Department, 1119 Taliaferro Hall, University of Maryland, College Park, MD 20742.

## OPPORTUNITIES

## UNDERGRADUATE RESEARCH EXPERIENCES

African American and Africana Studies majors and certificate students have three opportunities to engage in undergraduate research and/or experiential learning opportunities:

- AASP399: Research in African American Studies (required for majors). Students must be an AAAS major. Students will work with an AAAS faculty member in their research lab. All majors must complete 2 credits of Research Lab.
- AASP386: Experiential Learning. The student must be in good standing and have at least 56 cumulative credit hours to apply. (details below)
- **Undergraduate Teaching Assistant (UTA)**. The student must have received a grade of A- or higher in the course and have at least 56 cumulative credit hours to apply. May also be taken through the TLTC.

Additionally, AAAS majors with an overall GPA of 3.0 or above may enroll, with department permission, in the AASP397, Senior Thesis, working with one or more core AAAS faculty members.

For more information and details, please call the AAAS Academic Advisor at 301-405-1161.

## FIELDWORK OPPORTUNITIES

Experiential Learning, AASP386, in African American and Africana Studies is an academic seminar for majors and certificate students who are working at internship or service sites and organizations whose mission and goals relate to the African American experience. Through course work and class discussions, students are challenged to integrate their experiential experiences with the interdisciplinary study of past and present African American communities. To successfully earn credit for experiential learning students must fulfill the requirements at the internship or service site, participate in a weekly seminar, and complete the assigned projects aimed at bringing together academic research, reflective work, and professional development.

The internship or service portion of the course requires students to work closely with their site supervisors. Students are required to fulfill the job responsibilities and work the number of hours per week that is outlined in their learning proposals. Site supervisors define specific job responsibilities and assignments, monitor their training, and evaluate their performance at the end of the semester by completing an evaluation form and submitting a letter of recommendation to be included in their portfolios.

Students are also required to participate in a weekly seminar and complete assignments that examine the relationship between classroom, work, and service experiences. The seminar will give students the opportunity to discuss their internships and how their experiences are enhanced by their understanding of African American studies. During the seminar, students will share information about assignments and give each other feedback. Students will evaluate their internship sites and the roles the sites play in black communities and in promoting social change.

## INTERNSHIPS

AASP386 was developed to enable majors and certificate students to formally link their academic studies to experiences as undergraduate teaching assistants, undergraduate research assistants, and through external internships while doing so in a structured learning context.

Undergraduate teaching assistants and undergraduate research assistants work directly with an AAAS faculty member who provides supervision and mentoring to the student in all aspects of their undergraduate assistantship.

Students participating in external internships work closely with their site supervisors. Students are required to fulfill the job responsibilities and work the number of hours per week that are outlined in their learning proposals. Site supervisors define specific job responsibilities and assignments, monitor their training and evaluate their performance at the end of the semester by completing an evaluation form and submitting a letter of recommendation to be included in their portfolios.

All students must participate in a weekly seminar and complete assigned projects aimed at bringing together academic research, reflective work, and professional development.

## HONORS PROGRAM

AAAS offers honors sections for many of our General Education and upper-level elective courses.

AASP397 is a capstone course that offers AAAS majors who have a cumulative GPA of 3.0 or higher the opportunity to work with a tenured or tenure-track AAAS faculty member in an independent study to complete a senior thesis project.

Senior thesis students have the opportunity to research, write, and orally defend their thesis project before a panel of AAAS faculty.

Please make an appointment to see the AAAS Academic Advisor about the honors sequence by calling 301-405-1158.

## STUDENT SOCIETIES AND PROFESSIONAL ORGANIZATIONS

AAAS majors have the opportunity of being well prepared for leadership positions in campus organizations. AAAS majors have historically held notable positions at the University of Maryland in such organizations as the NAACP; Alpha Nu Omega Sorority, Incorporated; and the Black Student Union.

The Society of African American Studies is the student-run organization associated with and supported by the department. The Society provides community service in local schools, hosts on-campus programs and events, and annually has supported a local family through its "Adopt-a-Family" program.

The Society annually sponsors a "Saturday Freedom School" program which brings middle school children from a local Prince George's County Public School to campus for seven consecutive Saturdays. The program provides mentoring and academic support that seeks to foster the development of positive Black identities in the student participants while strengthening their academic performance.

Students are recruited from across the UMD campus to serve as mentors to Saturday Freedom School participants.

Please call 301-405-1158 to inquire about the Society of African American Studies.

## SCHOLARSHIPS AND FINANCIAL ASSISTANCE

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, please visit http://financialaid.umd.edu.

## AWARDS AND RECOGNITION

Graduating seniors with an overall GPA of 3.2 who have earned a 3.5 GPA within the major are recognized with departmental honors.

Graduating seniors with an overall GPA of 3.5 who have earned a 3.7 GPA within the major are recognized with departmental high honors.

# African American and Africana Studies Certificate

**Assistant Program Director and Academic Advisor:** Marshal Washington

The Certificate in African American and Africana Studies offers undergraduate students an excellent opportunity to develop a specialization in African-American issues while pursuing a major in another field. Certificate students learn about the social, economic, political and cultural history of the African-American people through a concentration of courses they plan with the AAAS Academic Advisor. Courses taken toward the certificate also may be used to satisfy General Education requirements and electives.

Earning a Certificate in African American and Africana Studies gives students a competitive advantage in the job market by adding greater focus to their undergraduate experience.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **AASP General Education Courses** | | |
| AASP100 | Introduction to African American Studies | 3 |
| AASP101 | Public Policy and the Black Community | 3 |
| AASP200 | African Civilization | 3 |
| or AASP202 | Black Culture in the United States | |
| **Upper Division Electives** | | |
| AASP | Pre-approved courses 300-level or above in other departments | 9 |
| **Seminar** | | |
| AASP400 | Directed Readings in African American Studies | 3 |

| | | |
|---|---|---|
| or AASP402 | Classic Readings in African American Studies | |
| **Total Credits** | | **21** |

- Students must earn a "C-" or above in each course applied toward the certificate.
- Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the undergraduate certificate requirements.
- No more than 9 credit hours applied towards a major may be counted for the certificate.
- No more than 9 credit hours may be taken at institutions other than UMD.

**For more information, or to apply, please call the African American and Africana Studies Department at 301-405-1158. The AAAS office is located in 1119 Taliaferro Hall.**

# African American and Africana Studies Major

**Assistant Program Director and Academic Advisor:** Marshal Washington

The African American and Africana Studies Department offers a Bachelor of Arts in African American and Africana Studies or a Bachelor of Arts in African American and Africana Studies with a concentration in Public Policy. All students will take three foundation courses, two methods courses and one of three capstone options. Students choosing the African-American and Africana Studies major take five courses in two thematic areas (or clusters): 1) Cultural and Historical Analysis and 2) Civic Engagement and Social Justice. Students choosing the major will take courses that emphasize understanding historical and cultural context, developing problem-solving and critical thinking skills and fostering the capacity to effect change locally, nationally and globally. Courses cover a wide range of topics, including history, literature, health and well-being, family, politics, criminal justice, gender and race, and incorporate both the African-American and African Diasporic experience.

Students who choose the Public Policy Concentration must take six courses in our Public Policy sequence. The Public Policy concentration offers an emphasis on problem-solving, analytical decision-making, and practical applications of policy analysis and management skills. Courses in public policy cover a range of policy areas, including health, criminal justice, reproduction and education, and also address the institutions and processes involved in policy-making. Students have the opportunity to pursue a Joint BA/MPP degree.

## Admission to the Major

Students wishing to major in African American and Africana Studies must make an advising appointment for an orientation to the major. Students must complete an application and attend a BSOS academic plan workshop.

Please call the AAAS office at 301-405-1158 or contact lahsram9@umd.edu to schedule an advising appointment.

## Program Objectives

The African American and Africana Studies Department (AAAS) fosters an intellectual environment in which majors learn to critically examine, analyze, interpret and discuss the experiences, culture, traditions, and dynamics of people of the African Diaspora. A primary goal of the program is to develop strong critical thinking, analytical skills, research and writing skills, through our curriculum, such that AAAS majors learn the interdisciplinary methods used in examining the socio-economic, historical, and political experiences and contributions of people of African descent. Our curriculum is organized and structured to introduce AAAS majors to African American and Africana Studies and to ensure that they receive an appropriate grounding in the major themes of the field and can place these themes in the historical context of the African Diaspora such that they are better prepared to address the social science issues of race, racism, and inequality. The program provides preparation in fundamental research methodology so that AAAS majors are able to explore research questions with sufficient rigor.

Relevance of goals to the mission statements and/or strategic plans of the university, college, or program as applicable:

The University of Maryland's stated goals for undergraduates include the ability to learn and develop critical reasoning and research skills; written and oral communications skills; science and quantitative reasoning, and technological fluency. AAAS majors are well prepared upon graduation in these areas through the department's curriculum and extensive one-on-one mentoring by the AAAS faculty.

## Program Learning Outcomes

A primary goal of the African American and Africana Studies Department is to develop strong critical thinking, research and writing skills, through our curriculum, such that AAAS majors learn the interdisciplinary methods used in examining the socio-economic, historical, and political experiences and contributions of people of African descent. Students should acquire the following knowledge and skills:

1. Describe the social and historical context of the issues in African American and African Diaspora communities related to health and well-being, family functioning, economic development, political participation and contemporary culture.
2. Explain the dynamic interplay between social oppression and resistance in African-American Communities and the African Diaspora
3. Identify critical events and historical periods and analyze their implications for politics, economics, health and psychological functioning in African American and African diaspora communities.
4. Use social science methods and data to analyze social problems and propose solution.
5. Evaluate the validity of claims and conclusions in secular and scientific publications.
6. Identify, compute, and interpret common methods for analyzing quantitative data.
7. Write clearly and speak persuasively.

## REQUIREMENTS

Students must earn a grade of "C-" or better in each course that is to be counted toward completion of degree requirements. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy major degree requirements. All related or supporting courses in other departments must be approved by an AAAS academic advisor. Each semester there will be an approved list of courses for both those choosing the major or the concentration in Public Policy. The academic advisor will review the student's options during their mandatory advising appointment.

African-American and Africana Studies Major: 35 Total Credits

Public Policy Concentration: 38 Total Credits

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 246) | | |
| **Foundation Courses Required for All Majors** | | |
| AASP100 | Introduction to African American Studies | 3 |
| AASP200 | African Civilization | 3 |
| AASP101 | Public Policy and the Black Community [1] | 3 |
| or AASP202 | Black Culture in the United States | |
| **Methods** | | |
| AASP210 | Intro to Research Design and Analysis in African American Studies | 3 |
| AASP399 | Research in African-American Studies (Research Practicum) [2] | 2 |
| Select One: | | 3 |
| AASP395 | Fundamentals of Quantitative Research in Socio-Cultural Perspective [1] | |
| AASP390 | (Advanced Qualitative Methods) | |
| **Capstone (Choose One)** | | **3** |
| AASP397 | Senior Thesis | |
| AASP4XX | (Study Abroad in Africa or the African Diaspora) | |
| AASP4XX | (Capstone Seminar and Community Practicum) | |
| **Total Credits** | | **20** |

[1] Required for Public Policy Concentration Students
[2] Research Practicum is taken for 1 credit per semester.

# African-American and Africana Studies Major

| Course | Title | Credits |
|---|---|---|
| **Five courses at the 300 or 400 level are required. There must be at least one course in Cluster 1 and one in Cluster 2** | | **15** |
| Cluster 1 | | |
| AASP321 | (Gender, Race and Health) | |
| AASP340 | (Black Children and Youth) | |
| AASP341 | (Diversity in Black Family Life) | |
| AASP342 | (Racial Socialization of Children) | |
| AASP420 | (The Role of Place in Racial/Ethnic Health Disparities) | |
| AASP430 | (Structural Violence and Medical Apartheid in Black Communities) | |
| AASP432 | (Race, Reproduction and Population Policy: An International Perspective) | |
| AASP442 | (Race, Poverty and Transition to Adulthood) | |
| AASP445 | (Reducing Black White Achievement Gaps) | |
| AASP4XX | (Black Men, Popular Culture and Disability) | |
| Cluster 2 | | |
| AASP361 | Caribbean Women (Intro to Pan-Africanism) | |
| AASP362 | (African Contributions to History) | |
| AASP370 | (Africa in World Politics) | |
| AASP371 | Black Feminist Thought (Comparative Racial Politics) | |
| AASP380 | (The Commodification and Economics of the Prison Industrial Complex) | |
| AASP460 | (Black Women's Political and Cultural Engagements/Representations of Africa and the Global Diaspora) | |
| AASP462 | (Social Inequality and Social Policy in a Global Perspective) | |
| AASP480 | (Race, GIS and Social Inequalities) | |
| AASP481 | (Negroes with Guns) | |
| AASP492 | (African Americans and Public Policy) | |
| AASP4XX | (The History of Conservative Black Politics) | |
| **Total Credits** | | **15** |

# Public Policy Concentration

| Course | Title | Credits |
|---|---|---|
| **Analytic Component** | | |
| AASP301 | Applied Policy Analysis and the Black Community | 3 |
| ECON200 | Principles of Microeconomics | 3 |
| PLCY388 | Special Topics in Public Policy | 3 |
| or PLCY401 | Contemporary Issues in Public Policy | |
| AASP Policy Electives in African American Studies | | 9 |
| AASP398 | Selected Topics in the African Diaspora | |
| AASP411 | Black Resistance Movements | |
| AASP441 | Science, Technology, and the Black Community | |
| AASP443 | Blacks and the Law | |
| AASP498 | Special Topics in Black Culture | |
| AASP499 | Advanced Topics in Public Policy and the Black Community | |
| **Total Credits** | | **18** |

# GRADUATION PLANS

Click here (https://fellercenter.umd.edu/academic-advising/forms-policies/graduation-plans/) for roadmaps for graduation plans in the College of Behavioral and Social Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# African Studies Minor

**Program Coordinator:** George Kintiba, Ph.D.

The African Studies Minor focuses on the history, culture, politics and economics of the peoples who populate the continent of Africa. As an interdisciplinary field of study, the minor will provide students with an understanding of the historical and cultural contexts that have and continue to shape political, economic and social development in Africa.

# REQUIREMENTS

The African Studies Minor will include a total of 15 (18 if the student elects to pursue the optional Capstone offering) composed of the following:

| Course | Title | Credits |
|---|---|---|
| **Foundational Course** | | |
| AASP200 | African Civilization | 3 |
| **Courses of Choice (two must be at the upper level)** | | |
| Area 1: History, Culture, and Language (2 courses) | | 6 |
| AASP310 | African Slave Trade | |
| AASP361 | Caribbean Women | |
| AASP362 | | |
| AASP461 | | |
| CMLT235 | Black Diaspora Literature and Culture | |
| ENGL360 | African, Indian and Caribbean Writers | |
| ENGL368 | Special Topics in African American, African, and African Diaspora Literatures (topics vary; must be approved) | |
| HIST254 | African-American History to 1865 | |
| HIST310 | History of South Africa | |
| HIST319 | Special Topics in History (The African City: From Ancient Mali to Modern Johannesburg) | |
| HIST428 | Selected Topics in History (HIST428B: Seven Revolutions in Post War Africa) | |
| LANGUAGE | Any approved African language course [1] | |
| Area 2: Politics, Society, and Development (2 courses) | | 6 |
| AASP189I | HIV/AIDS in a Global Perspective | |
| AASP360 | Issues in African Development | |
| AASP370 | | |
| AASP462 | | |
| AASP463 | | |
| AASP482 | | |
| AREC365 | World Hunger, Population, and Food Supplies | |
| ECON315 | Economic Development of Underdeveloped Areas | |
| GEOG130 | Development Geography: Environmental & Social Justice | |
| GEOG422 | Changing Geographies of Sub-Saharan Africa | |
| GVPT282 | The Politics of Global Development | |
| **Capstone Course (optional)** | | |
| AASP400 | Directed Readings in African American Studies | |
| AASP401 | Research Directions in African-American Studies | |
| AASP468 | Special Topics in Africa and the Americas (AASP468Z: South Africa Study Abroad Seminar)) | |
| **Total Credits** | | **15** |

[1] AASD presently offers introduction and elementary courses in Igbo, Twi and Yoruba, and students may also take courses in Swahili through the Big 10 Alliance.

[2] Other relevant courses with permission of the program. Please see the academic advisor in AASD for an approved list of courses.

# Anti-Black Racism Minor

**Program Director:** Jeanette Snider, Ph.D.

The minor offers students from any academic discipline an opportunity to learn about Anti-Black Racism from academic experts through an interdisciplinary program of study. Students are also able to apply what they have learned in a specific professional or personal experiential learning capstone course, including research, internship, or community engagement opportunities. Anti-Black racism is conceptualized as policies and practices rooted in social institutions (i.e. education, health care, criminal justice system, housing) that reinforce prejudice and discrimination towards people of African descent. This minor will give students a deeper understanding of these policies, practices, beliefs, and behaviors as well as ways to work to ensure they can be inclusive leaders in line with what it means to be Terrapin Strong.

## Program Learning Outcomes

1. Identify, describe, and relate central themes of structural racism in general and anti-black racism in academic literature.
2. Describe (in writing and/or orally) one or more specific historical, economic, policy, or social community challenge(s) into context as it relates to anti-Black racism.
3. Demonstrate critical skills in listening to and responding to different viewpoints in an academic context using relevant evidence.
4. Describe the impact of historical and contemporary anti-Black racism in a specific professional or public setting.
5. Demonstrate ability to apply knowledge generated in the classroom to propose interdisciplinary solutions to real-world challenges using problem-based learning strategies.

## REQUIREMENTS

Students in the minor will choose one of five tracks by their 2nd semester in the minor. This will allow students to customize their experience in the minor based on their academic and professional interests. The key components are a common introductory course (ABRM330), three disciplinary courses, and a capstone course (ABRM450) that will feature an opportunity to participate in experiential learning that is mentored by a faculty member from one of the participating colleges/schools.

| Course | Title | Credits |
|---|---|---|
| **Core Courses** | | |
| ABRM330 | Introduction to Anti-Black Racism | 3 |
| Track Course (See below for tracks): | | 3 |
| AMST310 | Introduction to Comparative Ethnic and Racial Studies | |
| AASP101 | Public Policy and the Black Community | |
| TLPL202 | Good Stories: Teaching Narratives for Peace and Justice | |
| HLTH460 | Multicultural Population Health | |
| PLCY288 | Introduction to Public Policy Topics (PLCY288A - 21st Century Racial Justice and Gender fom the Bullhorn to the Ballot) | |
| Track Electives (See below for elective course list) | | 6 |
| ABRM450 | Applied Anti-Black Racism | 3 |
| **Tracks (includes the track course and 6 credits of electives):** | | |
| **Arts and Humanities Track** | | |
| AMST310 | Introduction to Comparative Ethnic and Racial Studies | |
| Elective Courses (6 credits) | | |
| **Behavioral and Social Sciences Track** | | |
| AASP101 | Public Policy and the Black Community | |
| Elective Courses (6 Credits) [1] | | |
| **Education Track** | | |

| | | |
|---|---|---|
| TLPL202 | Good Stories: Teaching Narratives for Peace and Justice | |
| Elective Courses (6 Credits) [1] | | |
| **Public Policy Track** | | |
| PLCY288 | Introduction to Public Policy Topics (PLCY288A 21st Century Racial Justice and Gender from the Bullhorn to the Ballot) [2] | |
| Elective Courses (6 Credits) [1] | | |
| **Public Health Track** | | |
| HLTH460 | Multicultural Population Health | |
| Elective Courses (6 Credits) | | |
| **Total Credits** | | **15** |

| Course | Title | Credits |
|---|---|---|
| **Elective Course List** | | |
| AASP100 | Introduction to African American Studies | 3 |
| AASP187 | The New Jim Crow: African-Americans, Mass Incarceration and the Prison Industrial Complex | 3 |
| AASP202 | Black Culture in the United States | 3 |
| AASP210 | Intro to Research Design and Analysis in African American Studies | 3 |
| AASP211 | Get Out: The Sunken Place of Race Relations in the Post-Racial Era | 3 |
| AASP230 | Social (In)Justice and African-American Health and Well-Being | 3 |
| AASP298B | | 3 |
| AASP298L | African-American Literature and Culture | 3 |
| AASP298M | Martin Luther King Jr. | 3 |
| AASP301 | Applied Policy Analysis and the Black Community | 3 |
| AASP310 | African Slave Trade | 3 |
| AASP313 | Black Women in United States History | 3 |
| AASP320 | Poverty and African American Children | 3 |
| AASP377 | (Baldwin and the Black Atlantic) | 3 |
| AASP413 | Gentrification: Have You Met the New Neighbors?: Issues of Belonging and Displacement in Urban Areas | 3 |
| AASP443 | Blacks and the Law | 3 |
| AASP498 | Special Topics in Black Culture (AASP498R Race and Sports) [2] | 3 |
| AMST290 | Shifting Sands: Constructing Cultural Mainstreams and Margins in the U.S. | 3 |
| AMST328 | Perspectives on Identity and Culture (AMST328E Afro-Latinx Diasporas) [2] | 3 |
| or USLT320 | Afro-Latinx Diasporas | |
| ANTH412 | Hypermarginality and Urban Health | 3 |
| ANTH433 | Archaeology of Slavery: Classical, Caribbean and North American Contexts | 3 |
| ARTH362 | Presently Black: Contemporary African American Art | 3 |
| CCJS370 | Race, Crime and Criminal Justice | 3 |
| CMLT235 | Black Diaspora Literature and Culture | 3 |
| CMLT277 | Literatures of the Americas | 3 |
| COMM360 | The Rhetoric of Black America | 3 |
| ENGL130 | Race and the Cultural Politics of Blood: A Historical Perspective | 3 |
| ENGL234 | African-American Literature and Culture | 3 |
| ENGL360 | African, Indian and Caribbean Writers | 3 |
| ENGL368 | Special Topics in African American, African, and African Diaspora Literatures | 3 |
| ENGL438 | Selected Topics in Media Studies (ENGL438B Black Digitalities) [2] | 3 |
| ENGL448 | Literature by Women of Color (ENGL448C Literature, Visual Culture and Art by Women of Color) [2] | 3 |
| ENGL459 | Selected Topics in LGBTQ+ Literatures and Media (ENGL459B Black Sexuality in Literature and Film) [2] | 3 |
| ENGL470 | African-American Literature: From Slavery to Freedom | 3 |
| ENGL471 | African-American Literature: 1910-1945 | 3 |
| ENGL472 | African-American Literature: 1945 to Present | 3 |
| ENGL479 | Selected Topics in Literature after 1800 (ENGL479B Black Performance: From Slavery to Hip-Hop) [2] | 3 |
| FMSC381 | Family Inequality | 3 |
| FMSC420 | African American Families | 3 |
| HESI202 | Race and Diversity in Higher Education | 3 |
| HESI220 | Adaptive Strategies for Multicultural Leadership and Dialogue | 3 |
| HESI418 | Special Topics in Leadership (HESI418D Leadership and Ethnicity) [2] | 3 |
| HIST254 | African-American History to 1865 | 3 |
| HLTH240 | (Am I Not a Man? Contemporary Issues in Black Men's Health) | 3 |
| HLTH460 | Multicultural Population Health | 3 |
| JOUR453 | Media Coverage of Diversity | 3 |
| KNES401 | Zip Code: Prediction of Physical Activity & Health | 3 |
| LGBT448 | Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (LGBT448L Black Queer Studies) [2] | 3 |
| MIEH330 | Environmental Justice, Racism, and Environmental Health Disparities: How where you live can kill you | 3 |
| PLCY288 | Introduction to Public Policy Topics (PLCY288B Impact of Discriminatory Housing Policies) [2] | 3 |
| PLCY288 | Introduction to Public Policy Topics (PLCY288L Organizing and Advocating for Justice) [2] | 3 |
| PLCY388 | Special Topics in Public Policy (PLCY388Z Race, Capitalism and the Wealth Gap) [2] | 3 |
| PSYC354 | Multicultural Psychology in the U.S. | 3 |
| SOCY224 | Why are We Still Talking About Race? | 3 |
| SOCY424 | Sociology of Race Relations | 3 |
| TLPL288 | Special Problems in Education (TLPL288R Critical Race Counter-storytelling) [2] | 3 |
| TLPL475 | Equitable Classrooms | 2 |
| TLPL476 | Equity and Pedagogy | 2 |
| TLPL481 | Embracing Diversity in the Classroom Community | 3 |
| URSP372 | Diversity and the City | 3 |
| USLT403 | Citizens, Refugees, and Immigrants | 3 |
| WGSS370 | Black Feminist Thought | 3 |

| | | |
|---|---|---|
| WGSS428 | Topics in Women, Gender, and Sexuality Studies (WGSS428J Black Feminist Science Studies) [2] | 3 |
| WGSS428 | Topics in Women, Gender, and Sexuality Studies (WGSS428L 21st Century Black Feminisms) [2] | 3 |

[1] At least one course from the electives list must be at 300-400 level to ensure that 9 credits of 300-400 level courses work in the minor.

[2] The specific suffixed version of the course listed in parentheses must be taken to count for the elective.

## ADVISING

Students interested in declaring the minor can obtain more information by contacting the Assistant Program Director, Marshal Washington, via email at lahsram9@umd.edu, or phone at 301-405-1161; or the AAAS Director of Undergraduate Studies, Dr. Ashley Newby, via email at anewby1@umd.edu; or in person at the African American and Africana Studies Department, 1119 Taliaferro Hall, University of Maryland, College Park, MD 20742.

# Black Women's Studies Minor (BSOS)

**Joint Minor in Black Women's Studies**

Women, Gender, and Sexuality Studies
College of Arts and Humanities
3121 Susquehanna Hall
Phone: 301-405-6877
http://wgss.umd.edu

African American Studies
College of Behavioral and Social Sciences
1119 Taliaferro Hall
Phone: 301-405-1158
https://aasd.umd.edu/

**WGSS Department Chair:** Neda Atanasoski, Ph.D.
**AASD Department Chair:** Sangeetha Madhavan, Ph.D.

The joint minor in Black Women's Studies focuses on the lives and experiences of women of Africa and the African Diaspora. As a specialty in the fields of Women, Gender, and Sexuality Studies and African American Studies, it will provide students with tools for understanding the social and cultural contexts in which race, gender, class, sexuality, ethnicity, nation and other dimensions of difference intersect to influence the lives and experiences of Black women.

See the African American and Africana Studies Department (p. 248) and Women, Gender, and Sexuality Studies Department (p. 179) for faculty rosters.

To make an appointment to explore or declare the minor, go to http://arhu.umd.edu/undergraduate/academics/minors/.

Students may enroll in the Black Women's Studies Minor through either African American and Africana Studies or the Harriet Tubman Department of Women, Gender, and Sexuality Studies. Students with a major in the College of Arts and Humanities are advised to enroll through the Harriet Tubman Department of Women, Gender, and Sexuality Studies. Students with a major in the College of Behavioral and Social Sciences are advised to enroll through the Department of African American and Africana Studies.

## REQUIREMENTS

Fifteen (15) credits of coursework are required, distributed below. No course with a grade less than "C-" may be used to satisfy the minor. An overall GPA of 2.0 in the minor is required for graduation. Students will design their program in consultation with the advisor in Women, Gender, and Sexuality Studies or African American Studies. No more than two courses may count toward a major in African American Studies or Women's Studies. Course lists can be found here: https://wgss.umd.edu/academic-programs/courses (https://wgss.umd.edu/academic-programs/courses/)

| Course | Title | Credits |
|---|---|---|
| **Foundation Courses** | | |
| Select one of the following: | | 3 |
| WGSS/AASP263 | Introduction to Black Women's Studies | |
| WGSS/AASP265 | Constructions of Manhood and Womanhood in the Black Community | |
| WGSS/AASP/LGBT264 | Quare/Queer Contentions: Exploration of Sexualities in the Black Community | |
| Select one of the following: | | 3 |
| WGSS314/AASP313 | Black Women in United States History | |
| HIST360 | Women and the Civil Rights Movement | |
| AASP398 | Selected Topics in the African Diaspora (AASP389G: Gender, Labor, and Racial Identity in Diasporic Communities) | |
| **Electives** | | **9** |
| **Total Credits** | | **15** |

- At least two electives must be at the 300 or 400 level.
- One 300 or 400 level course must be Comparative or non-U.S.
- See program for approved electives.

# Anthropology

**College of Behavioral and Social Sciences**
1111 Woods Hall
Phone: 301-405-1423
anthinquiry@umd.edu
http://anth.umd.edu/

Anthropology has a strong commitment to preserving and transmitting the knowledge of the past, illuminating the challenges of the present, and contributing to their solutions and shaping the future. We are known for our strong theoretical orientation and are nationally recognized for having an excellent program in applied anthropology. Our department is prepared to further collaborations within the university, locally, and globally.

## PROGRAMS

## Major

- Anthropology Major (p. 255)

## ADVISING

The primary advisor for students in the Anthropology major is the undergraduate advisor. The advisor is available to students during appointments, walk-in hours, and by phone and email. The advisor is

responsible for helping students plan their successful completion of the Anthropology major. Students will work with the advisor for an orientation to the department, status on degree progress, administrative approval for special course enrollment, academic audits, and graduation clearance. In addition, students should consider the Undergraduate Advisor a resource for general academic and career advice during their time at Maryland.

The office of the undergraduate advisor is supervised and supported by the director of undergraduate studies (a faculty member) in the Department of Anthropology. In addition, all faculty members in the department may serve as faculty advisors to students. For more information, or to contact the director of undergraduate studies or undergraduate advisor, please call 301-405-1423 or go to http://anth.umd.edu/.

# OPPORTUNITIES

## Academic Programs and Departmental Facilities

The Anthropology department offers beginning and advanced course work in four principal subdivisions of the discipline: archaeology, cultural anthropology, ecological anthropology, and medical anthropology. Within each area, the department offers some degree of specialization and provides a variety of opportunities for research and independent study. Laboratory courses are offered in ecological anthropology. Field schools are offered in archaeology. The interrelationship of all branches of anthropology is emphasized.

The Anthropology department has a total of five laboratories, which are divided into teaching labs and research labs. The department's four archaeology labs, containing materials collected from field schools and research projects of the past several years, serve both teaching and research purposes. The other laboratory is a teaching laboratory in ecological anthropology. The Center for Heritage Research Studies, located in the Department of Anthropology, focuses on research devoted to understanding the cultural characteristics of heritage and its uses.

The undergraduate curriculum is tied to the department's Master in Applied Anthropology (M.A.A.) program; accordingly, preparation for non-academic employment upon graduation is a primary educational goal of the department's undergraduate course work and internship and research components. The department also has a Doctor of Philosophy (PhD) program. Students at the graduate level are asked to focus in one of three areas of faculty expertise: Health, Heritage, and Environment.

## Undergraduate Research Experiences

There are several undergraduate research experiences available for students. For more information, please see our website: http://anth.umd.edu/.

## Fieldwork Opportunities

The Department of Anthropology encourages students to explore its field school and study abroad opportunities which include, summer archaeology field schools including field schools in Iceland and Ireland, and an ethnographic field school in the Brazilian Amazon.

For more information, see our website: http://anth.umd.edu/.

## Internships

All undergraduate students are encouraged to do an internship. There are many non-profit and government agencies in the Baltimore-Washington area that are willing to support Anthropology interns. For more information, please contact the Director of Undergraduate Studies or the Undergraduate Advisor.

## Honors Program

The Anthropology department also offers an Honors Program that provides the student an opportunity to pursue in-depth study of his or her interests. Acceptance is contingent upon a 3.5 GPA in anthropology courses and a 3.0 overall average. The Honors Citation is awarded upon completion and review of a thesis to be done within the field of anthropology. For additional information, students should contact the Director of Departmental Honors Program, Dr. Stephen Brighton, 301-405-3700; Email: sbrighto@umd.edu.

## Student Societies and Professional Organizations

Anthropology Student Association (ASA): An anthropology student association that meets regularly to plan student events and to help coordinate various student and faculty activities. For meeting times contact the Undergraduate Advisor.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# Anthropology Major

**Program Director:** George Hambrecht, Ph.D.

Anthropology, the study of culture, seeks to understand humans as a whole - as social beings who are capable of symbolic communication through which they produce a rich cultural record. Anthropologists try to explain differences among cultures - differences in physical characteristics as well as in customary behavior. Anthropologists study how culture has changed through time as the human genus has spread over the earth. Anthropology is the science of the biological evolution of human species, and the disciplined scholarship of the cultural development of human beings' knowledge and customary behavior.

Anthropology at the University of Maryland offers rigorous training for many career options. A strong background in anthropology is a definite asset in preparing for a variety of academic and professional fields, ranging from the law and business, to comparative literature, philosophy and the fine arts. Whether one goes on to a Master's or a Ph.D., the anthropology B.A. prepares one for a wide range of non-academic employment, such as city and public health planning, development consulting, program evaluation, and public archaeology. A Bachelor of Science in Anthropology degree offers more concentrated training including physical science in the areas of archaeology, ecological anthropology and medical anthropology. Courses offered by this department may be found under the acronym ANTH.

## Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

1. Students shall have an integrated knowledge, awareness and understanding of a culturally and biologically diverse world.
2. Students shall demonstrate an understanding of culture and society.
3. Students shall demonstrate the ability to understand complex research problems, and articulate appropriate methods and theory.

# REQUIREMENTS

Students may seek an undergraduate Bachelor of Arts degree or a Bachelor of Science degree. Every course used to satisfy anthropology major requirements must be completed with a grade of "C-" or higher. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy major degree requirements.

# AnthropOlogy Degree Requirements

All courses are three credits unless otherwise indicated.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 246) | | |
| **Foundational Courses** | | |
| Select three of the following: | | 9-10 |
| ANTH210 | Introduction to Medical Anthropology and Global Health | |
| ANTH222 | Introduction to Ecological and Evolutionary Anthropology (4 credits) | |
| ANTH240 | Introduction to Archaeology | |
| ANTH260 | Introduction to Sociocultural Anthropology and Linguistics | |
| **Method and Theory Courses** | | |
| Select two of the following: | | 6 |
| ANTH310 | Method & Theory in Medical Anthropology and Global Health | |
| ANTH322 | Method and Theory in Ecological Anthropology | |
| ANTH340 | Method and Theory in Archaeology | |
| ANTH360 | Method and Theory in Sociocultural Anthropology | |
| **Anthropology Electives** | | |
| Select a minimum of 12 credits offered in Anthropolgy, not double-counted for other Anthropology requirements | | 12 |
| **Applied Field Methods** | | |
| Select a minimum of 3 credits of the following: | | |
| ANTH271 | | |
| ANTH341 | Introduction to Zooarchaeology | |
| ANTH447 | Material Culture Studies in Archaeology | |
| ANTH451 | Environmental Archaeology | |
| ANTH464 | Anthropology of Cultural Heritage | |
| ANTH467 | Researching Environment and Culture | |
| ANTH468 | Special Topics in Cultural Anthropology (ANTH468P - Anthropology, War & Security) | |
| ANTH472 | | |
| ANTH491 | | |
| ANTH492 | | |
| ANTH498 | Advanced Field Training in Ethnography (ANTH498C - Environmental Conservation and Indigenous People in Brazil) | |
| ANTH496 | Field Methods in Archaeology [1] | |
| **Quantitative Skills Requirement** | | |
| Please refer to the 'Quantitative Skills Requirement' section below to view this requirement for the Bachelor of Arts or Bachelor of Science degree | | 3-8 |
| **Supporting Course Work** | | |
| Please refer to the 'Supporting Course Work' section below to view this requirement for the Bachelor of Arts or Bachelor of Science degree | | 9-18 |
| **Total Credits** | | **39-54** |

[1] Students with an archaeological focus must take this class

## Quantitative Skills Requirement

### Bachelor of Arts

| Course | Title | Credits |
|---|---|---|
| Select one of the following: | | 3 |
| BIOM301 | Introduction to Biometrics | |
| ECON201 | Principles of Macroeconomics | |
| ECON321 | Economic Statistics | |
| EDMS451 | Introduction to Educational Statistics | |
| GEOG306 | Introduction to Quantitative Methods for the Geographical Environmental Sciences | |
| PSYC200 | Statistical Methods in Psychology | |
| SOCY200 | Innovation, Exploration and the Evolution of Human Societies | |
| STAT100 | Elementary Statistics and Probability | |
| MATH107 | Introduction to Math Modeling and Probability [1] | |
| **Total Credits** | | **3** |

[1] Or a higher level MATH class is required.

### Bachelor of Science

| Course | Title | Credits |
|---|---|---|
| Select two of the following: | | 7-8 |
| STAT100 | Elementary Statistics and Probability | |
| MATH140 | Calculus I (4 credits) | |
| MATH141 | Calculus II (4 credits) | |
| MATH120 | Elementary Calculus I (4 credits) | |
| MATH121 | Elementary Calculus II (4 credits) | |
| **Total Credits** | | **7-8** |

## Supporting Course Work

### Bachelor of Arts

| Course | Title | Credits |
|---|---|---|
| Supporting courses approved by a faculty member | | 18 |
| **Total Credits** | | **18** |

### Bachelor of Science

| Course | Title | Credits |
|---|---|---|
| Select three of the following: | | 9-12 |
| AGNR301 | Sustainability | |
| AREC241 | Environment, Economics and Policy (4 credits) | |
| AREC326 | Intermediate Applied Microeconomics [1] | |
| AREC345 | Global Poverty and Economic Development | |
| AREC365 | World Hunger, Population, and Food Supplies | |

| | |
|---|---|
| AREC433 | Food and Agricultural Policy |
| AREC453 | Natural Resources and Public Policy [1] |
| AOSC123 | Causes and Consequences of Global Change |
| BSCI103 | The World of Biology |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory (4 credits) |
| BSCI160 & BSCI161 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab (4 credits) |
| BSCI135 | Amazing Green: Plants that Transformed the World (4 credits) |
| BSCI189 | (4 credits) |
| BSCI201 | Human Anatomy and Physiology I (4 credits) |
| BSCI202 | Human Anatomy and Physiology II (4 credits) |
| BSCI222 | Principles of Genetics (4 credits) [1] |
| BSCI223 | General Microbiology (4 credits) |
| BSCI360 | Principles of Animal Behavior [1] |
| BSCI361 | Principles of Ecology (4 credits) [1] |
| BSCI363 | The Biology of Conservation and Extinction [1] |
| BSCI370 | Principles of Evolution [1] |
| BSCI462 | Population Ecology [1] |
| BSCI471 | Molecular Evolution [1] |
| CMSC131 | Object-Oriented Programming I (4 credits) |
| CMSC132 | Object-Oriented Programming II (4 credits) |
| ENST233 | Introduction to Environmental Health |
| ENST440 | |
| GEOL100 & GEOL110 | Physical Geology and Physical Geology Laboratory (4 credits) |
| GEOL340 | Geomorphology [1] |
| GEOL342 | Sedimentation and Stratigraphy [1] |
| GEOL446 | Geophysics [1] |
| GEOG330 | As the World Turns: Society and Sustainability in a Time of Great Change |
| GEOG332 | Economic Geography |
| GEOG372 | |
| GEOG373 | Geographic Information Systems |
| GEOG416 | Conceptualizing and Modeling Human-Environmental Interactions [1] |
| GEOG431 | Culture and Natural Resource Management |
| GEOG472 | Remote Sensing: Digital Processing and Analysis [1] |
| GEOG473 | Geographic Information Systems and Spatial Analysis [1] |
| MIEH300 | A Public Health Perspective: Introduction to Environmental Health [1] |
| MIEH321 | Environmental Determinants of Emerging Infectious Diseases |
| HLTH130 | Introduction to Public and Community Health |
| HLTH200 | Introduction to Research in Community Health |
| HLTH300 | [1] |
| HIST204 | Introduction to the History of Science |
| **Total Credits** | **9-12** |

[1] Prerequisites apply.

## GRADUATION PLANS

Click here (https://fellercenter.umd.edu/academic-advising/forms-policies/graduation-plans/) for roadmaps for graduation plans in the College of Behavioral and Social Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Criminology and Criminal Justice

**College of Behavioral and Social Sciences**
2220 LeFrak Hall
Phone: 301-405-4699
ccjsadvising@umd.edu
http://ccjs.umd.edu

The Department of Criminology and Criminal Justice was established in 1969 and graduated its first doctoral students in 1978/79. The department has grown to be one of the most popular majors on campus, with the #1 ranked doctoral program in the United States (U.S. News and World Report, 2005, 2010, 2019, 2020, 2021, and 2022). No longer physically confined to the College Park Campus, CCJS has an undergraduate program in Shady Grove and a Master's degree program in China with Nanjing Normal University Law School.

## PROGRAMS

### Major

- Criminology and Criminal Justice Major (p. 258)

## ADVISING

All majors are strongly encouraged to see an advisor at least once each semester. Advising is available on both a drop-in and appointment basis between 9 a.m. and 4 p.m. weekdays in 2201 Lefrak Hall. Students must complete all course prerequisites and obtain department permission from CCJS Advising to enroll in most CCJS classes. Call 301-405-4729 or email ccjsadvising@umd.edu.

## OPPORTUNITIES

### Internships

#### Requirements for Internship Placements

The internship must be a learning experience involving work in a criminal justice or criminological setting. Interns are expected to gain valuable information which will add to their overall understanding of the field of criminology and criminal justice. Internship positions must center on learning new material over the course of the semester and interns are expected to participate in ongoing training and development. Internships are subject to the approval of the Internship Director.

#### Internship Eligibility

Interns must meet the following criteria:

- Students must be CCJS majors
- Students must have a minimum of 56 credits
- Students must have a minimum UMD cumulative GPA of at least 2.5
- Student interns must work 45 hours per credit over the course of the semester
- Students can earn a maximum of 6 internship credits per semester and a total of 12 internship degree credits
- Internship credit is not granted for current or previously held jobs

Interns must register themselves for the internship prior to the end of the semester's schedule adjustment period. Additional information about internships can be picked up from the CCJS advising office in 2201 Lefrak Hall or the CCJS internship website (https://ccjs.umd.edu/undergraduate/internship-program/).

## Honors Program

The Honors Program is a four semester (12 required credit hours) sequence, which a student begins in the fall semester of their junior year. CCJS388H, the first course in the sequence, will provide an in-depth understanding of various contemporary criminological issues and the production of criminological research. CCJS388H is offered only in the fall semester. CCJS389H Independent Research is an experiential learning component, where students can complete either an independent study, research assistantship, or research-based internship of their choosing. CCJS389H can be completed during the spring semester of the junior year or anytime in the senior year. In the fall semester of the senior year, students will enroll in CCJS489H, where students start the writing process for their honors thesis. In the fall, students will solidify their honors thesis topic and begin preliminary research. In the spring semester of the senior year, students will continue CCJS489H, during which the student will complete an honors thesis and orally defend their thesis. The student with the best honors thesis from each cohort will be awarded the Laure Brooks Honors Thesis Award. Honors students may count their honors courses toward completion of the CCJS Course of Choice major curriculum requirement.

## Student Societies and Professional Organizations

There are two Student Societies available for membership for CCJS majors: the Criminal Justice Student Association (CJSA) and Alpha Phi Sigma Honor Society (APS).

The Criminal Justice Student Association (CJSA) is dedicated to supplementing our members' academic experience by providing extracurricular opportunities to further explore critical issues involving criminology and criminal justice. Through a regular program of speakers, agency demonstrations, and community service projects, the CJSA provides students with valuable information for making decisions about career choices, further graduate level study, and law school. The CJSA provides students with opportunities for academic and social interaction, and access to criminology and criminal justice researchers, teachers, and practitioners representing a variety of government, academic and commercial corporate and non-profit organizations. All graduate and undergraduate students, regardless of major, are eligible for membership in the CJSA. CJSA meetings and programs are held at least monthly during the fall and spring semesters. CJSA does not assess membership dues or fees.

Alpha Phi Sigma (APS) is a National Criminal Justice Honor Society founded in 1942 and membership is open to CCJS majors who have completed at least 40 total credits with at least 12 credits in CCJS courses. Applicants must have completed at least one semester at the University of Maryland, College Park (UMD) and have an established UMD grade point average. Undergraduate applicants must have an overall GPA of at least a 3.2 and a major GPA of at least 3.2. Graduate student applicants must have a 3.4 overall GPA. To apply applicants start with completing the application available at http://alphaphisigma.org. Students must submit the completed application and the required application fee to Chapter Advisor Nicole Jackson. Applications are processed once at the beginning of the fall and spring semesters. More information about the UMD Omega Iota chapter of APS is available on the CCJS undergraduate website (https://ccjs.umd.edu/undergraduate/clubs-and-associations/).

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Awards and Recognition

Each semester the department selects the outstanding graduating senior for the Peter J. Lejins award.

# Criminology and Criminal Justice Major

**Program Director:** Justine Madoo, Ph.D.

The mission of the Department of Criminal Justice & Criminology is to provide a supportive academic and professional environment for faculty and students. The Department promotes study and teaching concerning crime and delinquency and their prevention and control. The University of Maryland's Department of Criminology and Criminal Justice is a national and international leader in research and criminal justice education, and its Graduate Program is ranked number one in the field. Courses offered by this department may be found under the following acronym: CCJS. Both UMD and Shady Grove offer the CCJS Bachelor of Arts degree.

## Admission to the Major

In accordance with university policy, the Department of Criminology and Criminal Justice at UMD has been designated a Limited Enrollment Program (LEP). All first-time freshmen admits who request Criminology and Criminal Justice will be directly admitted into the major. Other first-time freshman that wish to declare Criminology and Criminal Justice as a major prior to the last day of classes of the first semester in residence will be allowed to do so. The LEP does not apply to the CCJS Shady Grove program.

In order to remain a Criminology and Criminal Justice major, newly admitted freshman will be required to complete the following gateway/entrance requirements on or before the end of the semester in which they attempt 45 University of Maryland credits:

1. Completion of CCJS100 with a grade of "C-" or higher
2. Completion of CCJS105 with a grade of "C-" or higher

3. Completion of MATH107 or STAT100 with a grade of "C-" or higher. A calculus class (MATH120 or MATH136, MATH140 with a grade of "C-" or higher may be substituted.
4. A minimum cumulative GPA of 2.00

All other students, including both internal and external transfer students, will not be admitted to the program until they have met the following requirements:

1. Completion of CCJS100 with a grade of "C-" or higher
2. Completion of CCJS105 with a grade of "C-" or higher
3. Completion of MATH107 or STAT100 with a grade of "C-" or higher. A calculus class (MATH120 or MATH136, MATH140) with a grade of "C-" or higher may be substituted.
4. A minimum cumulative GPA based on all previous college-level coursework of 2.50 or higher

### Policies for Limited Enrollment Programs

- Only one gateway or performance review course may be repeated to earn the required grade and that course may only be repeated once.
- When more than one course can satisfy a gateway requirement, taking a second course from the list will count as a repeat.
- Students may apply only once to an LEP. Students who are directly admitted and fail to meet the performance review criteria will be dismissed from the major and may not reapply.
- Students must maintain a minimum cumulative GPA of 2.00. Failure to do so will result in dismissal from the major.

Any student denied admission or dismissed from the major may appeal. Dismissed students appeal directly to the Director of Undergraduate Studies in Criminology and Criminal Justice. Internal transfer students appeal to the Office of the Dean for Behavioral and Social Sciences. External transfer students appeal to the Office of Undergraduate Admissions.

## Program Learning Outcomes

Having completed the CCJS degree program, students should acquire the following knowledge and skills:

1. Students will demonstrate understanding of the three pillars of our criminal justice system - courts, policing, and corrections
2. Students will demonstrate understanding of the major theories that are used to explain criminal behavior
3. Students will demonstrate competency in the ability to read, interpret, and synthesize (in writing) important research related to criminological theory and the criminal justice system
4. Students will demonstrate understanding of the research methods used in the study of criminology and criminal justice
5. Students will demonstrate competency in apply quantitative skills to criminological concepts

## REQUIREMENTS

The requirements below are in effect for all students who matriculated into the UM system Fall 2015 or later and for students who are currently changing their major to CCJS.

The CCJS major is comprised of 36 credit hours of coursework in the CCJS department and either MATH107 (formerly MATH111) or STAT100. A calculus class (MATH120, MATH130, or MATH140) with a grade of C- or higher may be substituted for MATH107 or STAT100.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 246) | | |
| **Required CCJS Courses** | | |
| CCJS100 | Introduction to Criminal Justice | 3 |
| CCJS105 | Introduction to Criminology | 3 |
| CCJS200 | Statistics for Criminology and Criminal Justice | 3 |
| CCJS230 | Criminal Law in Action | 3 |
| CCJS300 | Criminological and Criminal Justice Research Methods | 3 |
| **CCJS Criminal Justice Courses** | | |
| Select two of the following: | | 6 |
| CCJS340 | Policing | |
| CCJS345 | Courts and Sentencing | |
| CCJS342 | Corrections | |
| **CCJS Criminology/Theory Course** | | |
| Select one of the following: | | 3 |
| CCJS450 | Advanced Juvenile Delinquency | |
| CCJS451 | Crime and Delinquency Prevention | |
| CCJS454 | Contemporary Criminological Theory | |
| **CCJS Courses of Choice** | | |
| Select four CCJS courses using one or a combination of the following ways: [1] | | 12 |
| Complete additional CCJS courses that are not required [2] | | |
| Complete one Independent Study for credit (max 3 credits) | | |
| Complete one Internship for credit (max 3 credits) | | |
| **Math Courses for the CCJS LEP Gateway Requirements** | | |
| Select one of the following: [3] | | 3 |
| MATH107 | Introduction to Math Modeling and Probability (formerly MATH111) | |
| STAT100 | Elementary Statistics and Probability | |
| **Total Credits** | | **39** |

1. Two CCJS Courses of Choice must be at the 400 level
2. i.e., CCJS325, CCJS360, CCJS418
3. A calculus class, MATH120 (formerly MATH220), MATH130 or MATH140, with a grade of C- or higher may be substituted

Please keep the following information in mind:

- No grade lower than a C- may be used toward the major
- Students must achieve a combined grade point average of a 2.0 in the CCJS major

### Other Requirements for the Major

The CCJS Department enforces all prerequisites and does not oversubscribe students to courses that are closed.

## GRADUATION PLANS

Click here (https://fellercenter.umd.edu/academic-advising/forms-policies/graduation-plans/) for roadmaps for graduation plans in the College of Behavioral and Social Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Economics

**College of Behavioral and Social Sciences**
3114 Tydings Hall
Phone: 301-405-3266
econadvising@umd.edu
http://econ.umd.edu

Economists analyze how people make choices. This statement may seem very simplistic, but it captures the most fundamental aspects of the economics discipline. The range of issues and circumstances that shape peoples' choice are vast and complicated, so economists use conceptual tools to focus on the most important decision-making factors and to predict typical outcomes of peoples' interactions. Economists also use empirical tools to test theory, analyze data, and inform ongoing decision-making. Policymakers in both government and business rely on economists for research findings and advice.

# PROGRAMS

## Major

- Economics Major (p. 261)

# ADVISING

3108 Tydings Hall
Phone: 301-405-8367
econadvising@umd.edu

Departmental academic advisors are available to assist current and prospective majors. Students are encouraged to meet with an advisor at least once an academic year to verify progress in their program requirements. Further information on courses, internships, the department honors program, career planning, and graduate schools may also be obtained from the advisors.

The Economics Undergraduate Advising Office offers both in-person and virtual services. Advisors are available Monday through Friday from 8 a.m. - 4:30 p.m. by email, phone, drop-ins, and/or scheduled appointments. Additional details about advising availability is posted at http://econ.umd.edu/undergraduate/advising-resources/.

# OPPORTUNITIES

## Honors Program

The Economics Honors Program provides economics majors with the opportunity for advanced study in a seminar format, with faculty supervision of an honors thesis. The Honors Program is designed for students planning to attend graduate school or those seeking an in-depth study of economic theory and its application to economic problems.

For detailed information on the Honors Program, including eligibility requirements, visit the ECON website at http://econ.umd.edu/undergraduate/departmental-honors-program/.

## Student Societies and Professional Organizations

**The Economics Association of Maryland (EAM)** is an undergraduate club that provides an opportunity for students to get to know their fellow ECON majors outside the classroom. This undergraduate club is a great way to learn about new developments in the department, employment opportunities, fellowships, and graduate school requirements. The meetings are quite diverse, ranging from socials to scholarly talks to information sessions.

**Women in Economics (WIE)** in an undergraduate club that serves to function as a social network and safe space for women and non-binary individuals studying economics to come together with their allies to learn from each others' experiences. WIE hopes to provide both professional and emotional support for traditionally underrepresented groups within the field of economics, and to foster relationships that will lead to the success of members in their time at UMD and later in their careers.

**Promoting Achievement and Diversity in Economics (PADE)** is a Department of Economics initiative to increase the participation of students whose identities are underrepresented in economics in graduate school and related careers. PADE students attend weekly one-on-one meetings with a graduate student for academic support and enrichment, and receive regular academic and career advising from the PADE faculty director. Students also participate in professional and academic development activities.

Please see the undergraduate economics advisors in 3108 Tydings for more information.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Awards and Recognition

- The Kenneth Bupp Scholarship is awarded to an academically successful economics major with demonstrated financial need.
- The Dudley and Louisa Dillard Award is given to an outstanding economics honors student with one of the best honors thesis.
- The Rupa Duttagupta Fellowship supports an economics major with demonstrated financial need and a solid academic standing.
- The Melanie E. (Lee) Easley Memorial Scholarship supports an economics major with demonstrated financial need and a solid academic standing.
- The Honorable Idamae Garrott Memorial Scholarship supports academically talented majors who demonstrate financial need.
- The Sujon Guha Memorial Award for Academic Excellence and Outstanding Leadership is awarded to an economics honors student with one of the best honors thesis.
- The Martin Moskowitz Award is presented to a graduating senior based on academic excellence and a demonstrated commitment to and philosophy of public service.
- The Moskowitz Family Scholarship is awarded to an academically successful economics major with demonstrated financial need.

- The Peggy Rae and John Sapienza Scholarship is awarded to a junior or senior economics major and is intended to facilitate the education of a hardworking student and encourage him/her toward graduation.
- The Mark C. Sullivan Economics Scholarship is awarded to an economics major who came from the eastern part of the state and has high academic performance.
- The Mark D. Turner and Tracye C. Turner Scholarship in Economics is awarded to an economics major who shows commitment to using their degree to assist minority communities.

# Economics Major

**Director of Undergraduate Studies:** Erin Moody, Ph.D.

Economists study a wide range of phenomena using analytical methods which describe how people and collections of people behave and interact. Many economists define their profession as the analysis of decisions made in the context of scarcity. Economics can also be described as the study of the production, pricing, and distribution of goods and services within societies. Economists study such issues as inflation, unemployment, poverty, environmental quality, financial markets, and international trade. Economists also apply their methods of analysis to such diverse areas as crime, health care, discrimination, and the problems of developing countries.

Courses offered by this department may be found under the following acronym: ECON. As a large, diverse department, courses are offered in many of the major fields of economic study. Several courses analyze the role of the government policies impacting economic outcomes, while others focus on developing advanced applications of economic theories and methodologies.

Students can learn about the methods of analysis that economists use and about the various fields of inquiry where economists have been most productive. Undergraduate economics majors choose between two curriculums, one leading to a Bachelor of Arts degree and the other to a Bachelor of Science. In the B.A. track, students learn how to apply economic analysis to a variety of social issues, as well as, the fundamental methodological tools. In the B.S. track, students focus more attention on the methodology of economic analysis, which requires more emphasis on quantitative skills.

Economics majors have a wide variety of career options, including positions in state and local government, federal and international agencies, business, finance and banking, journalism, teaching, politics and law. Many economics majors pursue graduate work in economics or another social science, law, business or public policy.

# Program Learning Outcomes

Students are expected to fully utilize the opportunities presented for learning and research. Having completed the degree program, students should have acquired the following knowledge and skills:

1. Understanding of the key terminology used within the discipline.
2. Ability to use the fundamental methods and tools of the discipline to model economic behavior and to describe and analyze relationships between economic variables.
3. Ability to interpret and apply descriptive and inferential statistics.
4. Ability to analyze the effect of government policies on the economy using both conceptual and quantitative tools.
5. BA track: Ability to articulate how economic analysis can be used to improve decision-making in various situations.
6. BS track: Ability to carry out various techniques for evaluating hypotheses regarding economic phenomena.

# REQUIREMENTS

In addition to the university's general education requirements, students must earn a minimum of 41 credits via a combination of foundation and elective courses in economics and math as listed below. Both the Bachelor of Arts and the Bachelor of Science tracks require a sequence of courses starting with introductory micro and macroeconomics, as well as calculus. Students then proceed to intermediate level courses in theory and statistics. Finally, students take at least one upper-level course focused on quantitative analysis plus several upper-level courses where you explore specific topics in more depth. Both tracks require the same number of courses.

All courses must be passed with a grade of "C-" or better to count towards the foundation and elective requirements. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy major degree requirements. A course used to fulfill one requirement for the major may not count towards any other economics major requirement.

# Bachelor of Arts

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 246) | | |
| **Foundation Courses** | | |
| ECON200 | Principles of Microeconomics | 3 |
| ECON201 | Principles of Macroeconomics | 3 |
| MATH120 | Elementary Calculus I | 3-4 |
| or MATH140 | Calculus I | |
| ECON230 | Applied Economic Statistics | 3 |
| or BMGT230 | Business Statistics | |
| ECON305 | Intermediate Macroeconomic Theory and Policy | 4 |
| ECON306 | Intermediate Microeconomic Theory & Policy | 4 |
| **Economics Courses of Choice** | | |
| Select one of the following: [1] | | 3 |
| ECON402 | Macroeconomic Models and Forecasting | |
| ECON414 | Game Theory | |
| ECON424 | Applied Econometrics | |
| ECON425 | Mathematical Economics | |
| ECON426 | Economics of Cost-Benefit Analysis | |
| Select two 300 or 400 level ECON courses designated for B.A. | | 6 |
| Select three 400 level ECON courses designated for B.A. | | 9 |
| Select one of the following: | | 3 |
| ECON386 | Experiential Learning | |
| Other experiential learning course(s) | | |
| 300 or 400 level ECON course designated for the B.A. | | |
| **Total Credits** | | **41-42** |

*The Economics curriculum may be updated over time, given college and campus approval. Students will be notified as other appropriate courses are approved that fulfill the requirements for the major.*

# Bachelor of Science

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 246) | | |
| **Foundation Courses** | | |
| ECON200 | Principles of Microeconomics | 3 |
| ECON201 | Principles of Macroeconomics | 3 |
| MATH140 | Calculus I | 4 |
| ECON300 | Methods and Tools for Economic Analysis | 3 |
| or MATH241 | Calculus III | |
| Note: Students who take MATH241 must also take another statistics course | | |
| ECON321 | Economic Statistics | 3 |
| or STAT401 | Applied Probability and Statistics II | |
| ECON325 | Intermediate Macroeconomic Analysis | 4 |
| ECON326 | Intermediate Microeconomic Analysis | 4 |
| ECON422 | Econometrics | 3 |
| **Economics Courses of Choice** | | |
| Select three 400 level ECON courses designated for the B.S. | | 9 |
| Select one 400 level ECON course designated for the B.S. or B.A. | | 3 |
| Select one 300 or 400 level ECON course designated for the B.S. or B.A. | | 3 |
| **Total Credits** | | **42** |

*The Economics curriculum may be updated over time, given college and campus approval. Students will be notified as other appropriate courses are approved that fulfill the requirements for the major.*

# Other Requirements for the Major

## Study Sequences and Plans of Study

Those students planning to pursue graduate study in economics must begin to prepare themselves analytically for graduate work by focusing on theory, statistics, and mathematics in their undergraduate curriculum. These students should consider the full econometrics sequence of ECON422 and ECON423. Mastery of advanced calculus and linear algebra is essential for entrance into graduate schools, and therefore students must take MATH140, MATH141, MATH240, MATH241 and MATH246. Students should also plan on taking MATH410 and MATH411.

## Benchmarks

In accordance with the university's policies, the Department of Economics expects students to make timely progress towards graduation. To help measure progress during the early stages of a student's studies in economics, students will have to complete courses designated as benchmarks within a specified number of semesters in order to continue in their major.

### Bachelor of Arts

Students must complete the following five courses within two semesters of entering the major:

- ECON200, ECON201, and MATH120 or MATH140 with grades of C- or higher
- One additional GenEd course with a D- or higher
- Academic Writing with a C- or higher

### Bachelor of Science

Students must complete the following six courses within two semesters of entering the major:

- ECON200, ECON201, MATH140, and ECON300 with grades of C- or higher
- One additional GenEd course with a D- or higher
- Academic Writing with a C- or higher

These benchmark deadlines may not be appropriate for all incoming students (depending upon credit earned prior to entering the major and math placement). All students complete an individualized benchmark contract with an ECON advisor, either at orientation or in the process of declaring the major. Freshmen wishing to declare an Economics major should see an advisor as soon as possible in order to set appropriate benchmarks and establish a coherent graduation plan.

# GRADUATION PLANS

Click here (https://fellercenter.umd.edu/academic-advising/forms-policies/graduation-plans/) for roadmaps for graduation plans in the College of Behavioral and Social Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Economics Minor

**Director of Undergraduate Studies:** Erin Moody, Ph.D.

Economists study a wide range of phenomena using analytical methods which describe how people and collections of people behave and interact. Many economists define their profession as the analysis of decisions made in the context of scarcity. Economists apply their methods of analysis to many topics, including crime, health care, unemployment, poverty, discrimination, financial markets, environmental quality, international trade and many others.

This minor will prepare students to apply economic analysis to several topics. Because students can choose to take either Intermediate Microeconomic Theory (ECON306/ECON326) or Intermediate Macroeconomics Theory (ECON305/ECON325), students can then focus on upper level Economics courses that fit into either microeconomics or macroeconomics.

# Program Learning Outcomes

1. Use economic models as tools for explaining and evaluating economic outcomes.
2. Interpret empirical analysis and communicate findings.
3. Apply findings of economic research to inform decision-making.
4. Discuss differences in the economic experiences of people of different races, ethnicities, and genders, including how policies and institutions may have heterogenous effects on the economic outcomes of people of different races, ethnicities, and genders.

# REQUIREMENTS

The foundation courses in the minor include introductory micro and macroeconomics. Students then proceed to one intermediate level theory

course. Finally, students take at least three upper-level courses that explore specific topics in more depth.

- All courses must be completed with a grade of "C-" or better to be counted towards the minor.
- No more than 6 credits (or two courses) in this minor can count toward major requirements. Students with more than two courses of overlap must substitute non-overlapping 300 or 400 level courses from the approved list to reduce the overlap to no more than two courses.
- Majors in Agricultural and Resource Economics (AREC), Philosophy, Politics, and Economics (PHPE), Social Data Science-Economics Track (SDSC-ECON), and Environmental Science and Policy-Environmental Economics are not eligible to complete the Economics Minor due to the large number of overlapping course requirements.

## Courses Required for the Minor

| Course | Title | Credits |
|---|---|---|
| ECON200 | Principles of Microeconomics | 3 |
| ECON201 | Principles of Macroeconomics | 3 |
| (1) Intermediate Theory Course (ECON305, ECON306, ECON325, or ECON326) [1] | | 4 |
| (1) 300 or 400-level ECON course of choice OR Second Intermediate Theory Course (ECON305, ECON306, ECON325, or ECON326) | | 3-4 |
| (2) 400-level ECON courses of choice | | 6 |
| **Total Credits** | | **19-20** |

### Prerequisites

Calculus I and Statistics (ECON230, BMGT230, ECON321, STAT401, or equivalent)

[1] The prerequisites for ECON325 and ECON326 include Calculus III.

# Geographical Sciences

**College of Behavioral and Social Sciences**
1149 LeFrak Hall
Phone: 301-405-4073
geog-advise@umd.edu
http://geog.umd.edu

Vision: To lead the development of academic, educational, and research directions of human and natural systems, land cover/and land use change and geospatial information science, harnessing the integrative nature of geographic science to answer fundamental questions of global importance.

# PROGRAMS

## Major

- Geographical Sciences Major (p. 265)

## Minors

- Geographic Information Science Minor (p. 264)
- Remote Sensing of Environmental Change Minor (p. 268)

# ADVISING

Advising is mandatory for students each semester. The undergraduate advising office is located at 1149 LeFrak Hall. If you can, please email before you visit us since the schedule can change day to day. We can always be reached via email at geog-advise@umd.edu or voicemail at 301-405-4073.

# OPPORTUNITIES

## Fieldwork Opportunities

http://geog.umd.edu/content/study-abroad/

**GEOG418 (Summer/Fall): Field and Laboratory Techniques in Environmental Science**
Applied introduction to field methods. This class is built around a two week field trip (mid-August) with a base camp in the headwaters of the Potomac River in the mountains of West Virginia. During the camp the following topics are covers: GPS (global positions system), stream hydrology measurements, vegetation classification and ordination, micrometeorlogical measurements, soils, water quality, remote sensing and GIS, local environmental issues, geomophology and paleohistory, and natural and cultural history.

## Internships

http://geog.umd.edu/content/internship-program/

The Department of Geographical Sciences offers a one-semester internship program for undergraduates. Students can earn a total of three credits. Students are responsible for finding their own internships and can pursue a wide variety of opportunities in the public, private and non-profit sectors. Internships may be on- or off-campus, paid or unpaid.

### Internship Requirements

- Junior or senior with a minimum of 70 credits
- 2.5 GPA overall

### Internship Partners

- NASA Develop
- USDA
- Campus GIS - Facilities Management
- NOAA
- ESRI
- START
- Urban Resources Initiative
- The Maryland National Capital Park and Planning Commission

## Combined BS/MS Program

http://geog.umd.edu/undergraduate/combined-bsms-program/

The Department of Geographical Sciences' Combined, Five Year BS/MS Program is an opportunity for top-achieving undergraduate students to enhance their academic portfolio, and best prepare to enter the workforce or a doctoral program. This balanced research and academic program includes undergraduate and graduate coursework and a student-designed applied research project. Students who complete all program requirements will leave the University of Maryland after five years with a Bachelor of Science (BS) in Geographical Sciences and a Master of Science (MS) in Geographical Sciences.

# Student Societies and Professional Organizations

## Geography Club

Geography Club is back and better than ever! Join undergrads and grad students for cultural potlucks, international movies, charity events and exploratory trips around the DC metropolitan area!

- Contact the Geography Club at geogclubumd@gmail.com for more information.
- http://geog.umd.edu/content/clubs-and-associations/

## Gamma Theta Upsilon: The Geography Honor Society

http://geog.umd.edu/undergraduate/associations/

GTU is an international honor society in geography that aims to further professional interest in Geography, strengthen student and professional training and encourage student research. Membership is earned through superior scholarship and therefore it is an honor and a professional distinction.

Members must be in their 4th semester of study, working towards a Geographical Sciences or related degree, have a minimum 3.3 GPA cumulative and in all Geographical Sciences classes and attend meetings and events.

## The Association of American Geographers

http://aag.org

The Association of American Geographers (AAG) is a nonprofit scientific and educational society founded in 1904. For 100 years the AAG has contributed to the advancement of geography. Its members from more than 60 countries share interests in the theory, methods, and practice of geography, which they cultivate through the AAG's Annual Meeting, two scholarly journals (Annals of the Association of American Geographers and The Professional Geographer), and the monthly AAG Newsletter.

## The Sustainability Club

The Department of Geographical Sciences' sustainability club, otherwise known as the Geography Sustainability Task Force (GSTF), seeks to improve the efficiency of our consumption and improve working conditions while at the same time reducing our environmental footprint. We have made small strides such as changing paper usage and reducing power consumption in computer labs, but continue to work on large issues of departmental and building-wide lighting, water, and waste. Through increased education, awareness, and involvement we look forward to big changes in 2012 and beyond. The GSTF has, and continues to, consult and work with the University of Maryland Office of Sustainability (http://sustainability.umd.edu). Future meetings will be posted here and announced through internal departmental emails.

- Additional information can be obtained from Evan Ellicott (ellicott@umd.edu).
- http://geog.umd.edu/content/clubs-and-associations/

# Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# Awards and Recognition

- James R. Anderson Award For Undergraduate Excellence
- Robert A. Harper Award for Outstanding Undergraduate Research and Writing
- Undergraduate Research Symposium Award
- Outstanding Undergraduate Teaching Assistant Award

# Academic Programs and Departmental Facilities

The Geographical Science Department has two 25-seat computer teaching laboratories that are used in undergraduate coursework, particularly in GIS/Remote Sensing courses. There are different types of equipment for field research and remote sensing, and Global Positioning Systems (GPS) are also available.

# Geographic Information Science Minor

1149 LeFrak Hall
Phone: 301-405-4073
geog-advise@umd.edu
http://geog.umd.edu

**Program Director:** Keith Yearwood, Ph.D.

The minor program in Geographic Information Sciences is designed to give students the technical skills needed to acquire, manage and analyze geospatial data. Almost everything we do involves geospatial information such as deciding where to live and travel. Influenced by computer technology, the academic disciplines of geographic information science includes such areas as geospatial visualization, remote sensing, big geospatial data handling, mobile GIS, and web mapping among others, and has evolved dramatically in the past few decades. The fields of GIS-computer systems that manage and analyze different forms of digital geospatial data, and remote sensing-the science of obtaining geographic information from aircraft and satellites, have been growing at an extraordinary rate. Digital cartography has revolutionized traditional cartography to vastly improve map making and visualization of geographic information in a multimedia environment. Students in the minor program will receive extensive training in all of these exciting areas and join the next generation of geospatial scientists. These skills are in great demand in fields such as environmental, sustainable development, urban planning, governmental sectors, military intelligence, engineering, modeling, and computer science related fields.

## REQUIREMENTS

- All credits for the minor must be taken in the Department of Geographical Sciences at the University of Maryland, College Park.
- All courses must be completed with a grade of "C" or better.
- No more than six credits are to be included in the minor and student's major, supporting courses, and college requirements.
- At least nine credits must be at the 300 or 400 level.
- Must complete 15 credits in geography

See the undergraduate advising office for more information: LeFrak Hall 2108, 301-405-4073.

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| GEOG272 | Introduction to Earth Observation Science | 3 |
| GEOG373 | Geographic Information Systems | 3 |
| Two courses from the following: | | 6 |
| GEOG416 | Conceptualizing and Modeling Human-Environmental Interactions | |
| GEOG473 | Geographic Information Systems and Spatial Analysis | |
| GEOG475 | Geographic Visualization and Digital Mapping | |
| GEOG476 | Object-Oriented Computer Programming for GIS | |
| GEOG498 | Topical Investigations (GEOG498I Algorithms for Geospatial Computing) | |
| Other similar course | | |
| GEOG306 | Introduction to Quantitative Methods for the Geographical Environmental Sciences | 3 |
| or BIOM301 | Introduction to Biometrics | |
| or BMGT230 | Business Statistics | |
| or CCJS200 | Statistics for Criminology and Criminal Justice | |
| or ECON321 | Economic Statistics | |
| or EDMS451 | Introduction to Educational Statistics | |
| or GVPT422 | Quantitative Political Analysis | |
| or INST314 | Statistics for Information Science | |
| or JOUR405 | Breaking News With Numbers: Statistics for Journalists | |
| or PSYC200 | Statistical Methods in Psychology | |
| or SOCY201 | Introductory Statistics for Sociology | |
| **Total Credits** | | **15** |

# Geographical Sciences Major

geog-advise@umd.edu
http://geog.umd.edu

**Program Director:** Keith Yearwood, Ph.D.

Geographical Sciences concerns the relationships between people and the natural world, the effects of ecosystems on human beings and vice versa, the choices people make, the effects of past actions on people today, and the effects of today's choices on future generations. Students and faculty in the Geographical Sciences Department study the human dimensions of global change in order to address the most pressing global issues of our time, including climate change, food security, loss of forests and biodiversity, the spread of diseases, poverty, inequality, and much more.

Students earning a Bachelor of Science degree in Geographical Sciences will investigate the human dimensions of global change through synthesizing knowledge from geography sub-disciplines such as physical, human, and technical. Upon graduation students will understand physical geographic processes, the global distribution of landforms and ecosystems, and the role of the physical environment on human populations, as well as be able to explain how social and cultural systems develop in response to varying geographical, environmental, and historical circumstances. Program graduates will also be familiar with applications of geographic information science techniques and spatial analytics.

The Geographical Sciences Department offers two technical specializations in addition to the general Bachelor of Science in Geographical Sciences degree. These specializations are "Geospatial Data Science" and "Computational Earth Observation Science."

Students specializing in Geospatial Data Science gain the technical skills needed to acquire, manage, and analyze large amounts of geospatial data. Students will get computer training in digital processing of remote sensing observations and cartographic vector data, spatial analysis, and the display of information in Geospatial Information Science (GIS) software. The curriculum will provide students with the necessary background to use GIS in various fields such as environmental monitoring, disaster assessments, military analysis and intelligence, social justice, cartography, and other related fields. This specialization goes beyond the techniques for gathering and analyzing data and requires an understanding of the environmental and social processes represented by the data. These tools are essential to the education and future of global citizens.

Students specializing in Computational Earth Observation Science will explore the analytical capabilities offered by current Earth-observing satellite missions, including the different types of information collected by various satellites and how this information is analyzed to solve important environmental and societal problems. Students will learn the methods that are used to extract meaningful information from satellite images including mapping different land covers such as forests, cropland, or water, and monitoring environmental change over time. They will learn to apply statistical techniques, machine and deep learning algorithms to spatial data and will develop the necessary computer programming skills to handle big data analytics to support satellite image analysis. These technical skills will be developed alongside the fundamental understanding of environmental processes and human society to tackle a variety of pressing global, regional, and local issues including sea and continental ice loss and ocean warming, forest management and loss, wildfire impacts and prevention, urban growth and its consequences, crop monitoring and food security, and environmental degradation and health outcomes, among others. These students will be the next generation of professionals that will support the integration of satellite monitoring into private and public operational and research agencies to support building a better and more sustainable world.

Courses offered by this department may be found under the acronym GEOG.

# Program Objectives

## Mission

To make fundamental contributions to the advancement of geographic science by:

- Conducting disciplinary and integrative research in the physical and social sciences that spans local to global scales, with an emphasis on a geospatial perspective of our changing planet and its sustainability.
- Equipping undergraduate and graduate students to meet the challenges associated with the continuing evolution of geographic science while providing them with vibrant and fulfilling educational experiences.
- Applying geographic science to societal and environmental issues in our state, the nation and the global community.

## Vision

*To lead the development of academic, educational, and research directions of human and natural systems, land cover/and land use change and geospatial information science, harnessing the integrative nature of geographic science to answer fundamental questions of global importance.*

# Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

1. Geographic Theory: Demonstrate and apply knowledge of general geographic theory.
2. Integrative Thinking: Synthesize material within and between sub-disciplines of geography for application to an array of global issues.
3. Research Skills: Design and implement a research project.
4. Communication: Communicate effectively orally, in writing, and through geovisualization.

# REQUIREMENTS

Within any of the specializations available in the geographical sciences program it is possible for students to adjust their programs to fit their individual interests. The Geographical Sciences major totals 35 semester hours. In addition to the 35 semester hours, the Geographical Sciences major requires an additional 15 semester hours of supporting course work outside of the department. Supporting coursework is approved by the department advisor. Visit or call the GEOG Advising Office, Lefrak 2181, 301-405-4073, e-mail geog-advise@umd.edu, or see the web page at www.geog.umd.edu (http://www.geog.umd.edu). Supporting courses generally are related to the area of specialty in geographical sciences. The pass-fail option is not applicable to major or supporting courses. A minimum grade of "C-" in each course is required for major and supporting courses. Students must have a minimum 2.0 cumulative grade point average across all courses, including the supporting sequence, used to satisfy the major degree requirements.

The required courses for Geographical Sciences majors are as follows:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 246) | | |
| **Required Courses** | | |
| GEOG201 & GEOG211 | Geography of Environmental Systems and Geography of Environmental Systems Laboratory | 4 |
| GEOG202 | Introduction to Human Geography | 3 |
| GEOG212 | Career Planning for Geographical Sciences, GIS, and ENSP Majors | 1 |
| Select one upper-level physical geography course | | 3 |
| Select one upper-level human geography course | | 3 |
| Select one upper-level geographic techniques course | | 3 |
| ELECT300/400 | Upper-level geography electives [1] | 15 |
| GEOG306 | Introduction to Quantitative Methods for the Geographical Environmental Sciences | 3 |
| **Supporting Courses** | | |
| MATH120 | Elementary Calculus I | 3 |
| Supporting courses approved by GEOG advisor | | 12 |
| **Total Credits** | | **50** |

[1] At least one upper-level course in physical geography, human geography and geographic technique is required regardless of the specialty of the individual student's program. These courses build on the initial base provided by the Primary Courses, and also serve as the basis for selection of upper-level geography courses.

# Related Programs

## Geospatial Data Science Specialization

The Geographical Sciences Department offers an important area of specialization: Geospatial Data Science (formerly: GIS and Computer Cartography). The Bachelor of Science degree program in Geographical Sciences: Geospatial Data Science is designed to give students the technical skills needed to acquire, manage, and analyze large amounts of geographic data. Students will get computer training in digital processing of remote sensing observations and cartographic vector data, spatial analysis, and the display of information in Geospatial Information Science (GIS) software. The curriculum will provide students with the necessary background to use remote sensing and GIS in various fields such as environmental monitoring, disaster assessments, military analysis and intelligence, social justice, cartography, and other related fields. This track goes beyond the techniques for gathering and analyzing data and requires an understanding of the environmental and social processes represented by the data. These tools are essential to the education and future of global citizens.

The required courses for Geospatial Data Science Specialization are as follows:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 246) | | |
| **Required Courses** | | |
| GEOG201 & GEOG211 | Geography of Environmental Systems and Geography of Environmental Systems Laboratory | 4 |
| GEOG202 | Introduction to Human Geography | 3 |
| GEOG212 | Career Planning for Geographical Sciences, GIS, and ENSP Majors | 1 |
| Select one upper-level physical geography course | | 3 |
| Select one upper-level human geography course | | 3 |
| Select three credits of upper-level geography electives | | 3 |
| GEOG306 | Introduction to Quantitative Methods for the Geographical Environmental Sciences | 3 |
| GEOG272 | Introduction to Earth Observation Science | 3 |
| GEOG276 | Principles of Python Programming and Geocomputing | 3 |
| GEOG373 | Geographic Information Systems | 3 |
| Six credits from the following list: | | 6 |
| GEOG416 | Conceptualizing and Modeling Human-Environmental Interactions | |
| GEOG470 | Algorithms for Geospatial Computing | |
| GEOG472 | Remote Sensing: Digital Processing and Analysis | |
| GEOG473 | Geographic Information Systems and Spatial Analysis | |
| GEOG475 | Geographic Visualization and Digital Mapping | |
| GEOG476 | Object-Oriented Computer Programming for GIS | |
| GEOG477 | | |

| | | |
|---|---|---|
| **Supporting Courses** | | |
| MATH120 | Elementary Calculus I | 3 |
| Supporting courses approved by GEOG advisor [1] | | 12 |
| **Total Credits** | | **50** |

[1] Supporting area courses must be taken from a list provided by the department. All math programs should be approved by a departmental advisor.

# Computational Earth Observation Science Specialization

The Geographical Sciences Department offers an important area of specialization: Computational Earth Observation Science. The Bachelor of Science degree program Geographical Sciences: Computational Earth Observation Science allows students to explore the analytical capabilities offered by current Earth-observing satellite missions, including the different types of information collected by various satellites and how this information is analyzed to solve important environmental and societal problems. Students will learn the methods that are used to extract meaningful information from satellite images including mapping different land covers such as forests, cropland, or water, and monitoring environmental change over time. They will learn to apply statistical techniques, machine and deep learning algorithms to spatial data and will develop the necessary computer programming skills to handle big data analytics to support satellite image analysis. These technical skills will be developed alongside the fundamental understanding of environmental processes and human society to tackle a variety of pressing global, regional, and local issues including sea and continental ice loss and ocean warming, forest management and loss, wildfire impacts and prevention, urban growth and its consequences, crop monitoring and food security, and environmental degradation and health outcomes, among others. These students will be the next generation of professionals that will support the integration of satellite monitoring into private and public operational and research agencies to support building a better and more sustainable world.

The required courses for Computational Earth Observation Science Concentration are as follows:

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| GEOG201 & GEOG211 | Geography of Environmental Systems and Geography of Environmental Systems Laboratory | 4 |
| GEOG202 | Introduction to Human Geography | 3 |
| GEOG212 | Career Planning for Geographical Sciences, GIS, and ENSP Majors | 1 |
| Select one upper-level physical geography course | | |
| GEOG301 | Advanced Geographical Environmental Systems | 3 |
| or GEOG340 | Geomorphology | |
| or GEOG415 | Land Use, Climate Change, and Sustainability | |
| or GEOG418 | Field and Laboratory Techniques in Environmental Science | |
| or GEOG441 | The Coastal Ocean | |
| or GEOG442 | Biogeography and Environmental Change | |
| Select one upper-level human geography course | | |
| GEOG330 | As the World Turns: Society and Sustainability in a Time of Great Change [3] | 3 |
| or GEOG332 | Economic Geography | |
| or GEOG333 | The Social Geography of Metropolitan Areas in Global Perspective | |
| or GEOG335 | | |
| or GEOG413 | Migration: Latin America and the United States | |
| or GEOG431 | Culture and Natural Resource Management | |
| or GEOG432 | Spatial Econometrics | |
| Select three credits of upper-level geography electives | | 3 |
| GEOG306 | Introduction to Quantitative Methods for the Geographical Environmental Sciences | 3 |
| GEOG272 | Introduction to Earth Observation Science | 3 |
| GEOG276 | Principles of Python Programming and Geocomputing | 3 |
| Nine credits from the following list: | | 9 |
| GEOG371 | Programming for Image Analysis | |
| GEOG417 | Land Cover Characterization Using Multi-Spectral Remotely Sensed Data Sets | |
| GEOG461 | Machine Learning for Computational Earth Observation Science (CEOS) | |
| GEOG471 | Technologies for Computational Earth Observations (Technologies for Computational Earth Obeservations) | |
| GEOG472 | Remote Sensing: Digital Processing and Analysis | |
| **Supporting Courses** | | |
| MATH120 | Elementary Calculus I | 3 |
| Supporting courses approved by GEOG advisor [1] | | 12 |
| **Total Credits** | | **50** |

[1] Supporting area courses must be taken from a list provided by the department. All math programs should be approved by a departmental advisor.

# Geographical Science and Social Studies Education Double Major

In conjunction with the College of Education/Curriculum and Instruction, the Geographical Sciences Department offers a special 121 credit hour program for students wishing to double major in Geographical Sciences and Social Studies Education - Geography Concentration, allowing them to teach geography at the secondary level. Early examination of requirements is encouraged to reduce the number of additional hours required. In addition to the Geographical Sciences Department's required credits, the program requires 28 credit hours of course work in history and the social sciences. For a list of requirements, contact the Education Advising Office. Requirements are also listed under the Curriculum and Instruction Social Studies Education - Geography Concentration double major option.

# Introduction to Geography

The 100-level geography courses are general education courses for persons who have had no previous contact with the discipline in high school or for persons planning to take only one course in geography. They provide general overviews of the field or in one of its major topics. Credit for these courses is not applied to the major.

# GRADUATION PLANS

Click here (https://fellercenter.umd.edu/academic-advising/forms-policies/graduation-plans/) for roadmaps for graduation plans in the College of Behavioral and Social Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Remote Sensing of Environmental Change Minor

**Geographical Sciences (GEOG)**
1149 LeFrak Hall
Phone: 301-405-4073
geog-advise@umd.edu
http://geog.umd.edu

**Program Director:** Keith Yearwood, Ph.D.

The Remote Sensing of Environmental Change minor program (RSEC) is designed to build students' understanding global environmental change in order to assess their impacts on the physical and human landscapes, and to use remote sensing as an analytical tool for identifying the impacts. Students in the minor program will receive technical training in remote sensing to examine how extreme environmental events shape human society and ecosystems from the interdisciplinary perspective afforded by the field of geography.

## Admission to the Program

There are no special requirements for the minor program in Remote Sensing of Environmental Change. The Department of Geographical Sciences welcomes students from every area of study. GIS and ENSP students are also welcome to enroll in this minor.

# REQUIREMENTS

- All credits for the minor must be taken in the Department of Geographical Sciences at the University of Maryland, College Park.
- All courses must be completed with a grade of "C-" or better.
- No more than **six credits** are to be included in the minor and student's major, supporting courses, and college requirements.

| Course | Title | Credits |
|---|---|---|
| **Foundation Course** | | |
| Choose one Foundations Course | | 3 |
| GEOG140 | Natural Disasters: Earthquakes, Floods, and Fires | |
| GEOG170 | Mapping our Digital World | |
| **Technical Geography Courses** | | |
| GEOG272 | Introduction to Earth Observation Science | 3 |
| GEOG472 | Remote Sensing: Digital Processing and Analysis | 3 |
| Select one Physical Geography Course: | | 3 |
| GEOG340 | Geomorphology | |
| GEOG301 | Advanced Geographical Environmental Systems | |
| Select one Human Dimension of Global Change Course: | | 3 |
| GEOG328 | Topics in Regional Geography (GEOG328B - China) | |
| GEOG328 | Topics in Regional Geography (GEOG328C - Sub-Saharan Africa) | |
| GEOG330 | As the World Turns: Society and Sustainability in a Time of Great Change | |
| GEOG331 | Introduction to Human Dimensions of Global Change | |
| GEOG332 | Economic Geography | |
| GEOG423 | Latin America | |
| Select one Advanced Integrated Course: | | 3 |
| GEOG415 | Land Use, Climate Change, and Sustainability | |
| GEOG416 | Conceptualizing and Modeling Human-Environmental Interactions | |
| GEOG431 | Culture and Natural Resource Management | |
| GEOG441 | The Coastal Ocean | |
| GEOG442 | Biogeography and Environmental Change | |
| **Total Credits** | | **18** |

# Global Terrorism Studies Minor

**National Consortium for the Study of Terrorism and Responses to Terrorism (START)**
START, University of Maryland
PO Box Number 266
5245 Greenbelt Rd,
College Park, MD 20740
Phone: 301-405-6600
http://start.umd.edu

**Director:** Thomas R. Guarrieri, Ph.D.

The Global Terrorism Studies Minor program focuses on exploring the origins and motivations of terrorism based on theoretical understandings of individual and group behavior. Students also explore the impacts of the threat of terrorism on individuals and communities, as well as strategies for preventing, deterring, mitigating, and responding to terrorist threats.

For more information about the minor, please visit: http://start.umd.edu/education/global-terrorism-studies-minor-program/.

## Program Learning Outcomes

1. Students will be able to explain the history of terrorism, characteristics of terrorist organizations, and the impact of terrorism on individuals, groups, and societies
2. Students will be able to explain the theories and frameworks explaining terrorist motivations and behaviors
3. Students will be able to explain how topics related to diversity and culture affect extremism and counterterrorism
4. Students will be able to develop innovative approaches to help counter terrorism
5. Students will be able to apply skills and knowledge gained through experiential learning to a career in security studies

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Minor Requirements** | | |
| BSST377 | Applying Theory to the Practice of Countering Terrorism | 1 |
| BSST330 | | 3 |

| | | |
|---|---|---|
| BSST386 | Experiential Learning in Terrorism Studies (Not repeatable) | 1 |
| Innovative Ideas Requirement (choose one of the following) | | 3 |
| BSST331 | Innovations in Counterterrorism | |
| BSST335 | Innovations in Countering Violent Extremism | |
| ELECTIVES | Six additional elective credits from within Terrorism Studies (BSST) [1] | 6 |
| Select one of the following Global Perspective courses: | | 3 |
| ANTH265 | Anthropology of Global Health | |
| AREC345 | Global Poverty and Economic Development | |
| AREC365 | World Hunger, Population, and Food Supplies | |
| ENES269 | Topics in Grand Challenges for Engineering in a Global Context | |
| ENES316 | Global Leadership in Engineering, Business, & Technology | |
| ENES464 | International Entrepreneurship and Innovation | |
| ENES472 | Leading Global Teams and Engaging Across Cultures in Business, Engineering, and Technology | |
| ENES474 | Global Perspectives of Engineering | |
| GEOG330 | As the World Turns: Society and Sustainability in a Time of Great Change | |
| GVPT200 | International Political Relations | |
| GVPT204 | Uncertain Partners: US and China in a Changing World | |
| GVPT206 | Appetite for Change: Politics and the Globalization of Food | |
| GVPT210 | Religions, Beliefs, and World Affairs | |
| GVPT280 | The Study of Comparative Politics | |
| GVPT282 | The Politics of Global Development | |
| GVPT306 | Global Environmental Politics | |
| GVPT309 | Topics in International Relations | |
| GVPT354 | International Development and Conflict Management | |
| GVPT359 | Topics in Comparative Politics | |
| GVPT409 | Seminar in International Relations and World Politics (GVPT409J: Multi-Track Diplomacy & Conflict Transformation) | |
| GVPT409 | Seminar in International Relations and World Politics (GVPT409K: Workshop in Multi-Track Diplomacy) | |
| **Total Credits** | | **17** |

[1] Upon approval from the Director, students may substitute a relevant course outside BSST. If BSST331 is taken to fulfill the Innovative Ideas requirement, BSST335 can be taken to fulfill 3 BSST elective credits; if BSST335 is taken to fulfill the Innovative Ideas requirement, BSST331 can be taken to fulfill 3 BSST elective credits.

All courses used to satisfy the requirements of the minor must be completed with a grade of "C-" or better. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements.

# Government and Politics

**College of Behavioral and Social Sciences**

3140 Tydings Hall
Phone: 301-405-4156
http://gvpt.umd.edu

The Department of Government and Politics emphasizes such broad areas as political development, policy analysis, social justice, political economy, conflict, and human rights. These broad conceptual areas are integral components of study in the discipline. The areas are commonly referred to as American government and politics; comparative government; international relations; political theory; political methodology; and public law.

## PROGRAMS

### Major

- Government and Politics Major (p. 270)

### Minor

- International Development and Conflict Management Minor (p. 273)

## ADVISING

Academic advisors are available to assist students with degree planning. Students are encouraged to see an advisor each semester to ensure understanding of major requirements and to review students' progress within the major. All students are required to meet with a GVPT advisor before they register for their senior year of classes (at the 90 cumulative credit mark).

Academic advising is available by appointment or drop-in the GVPT Undergraduate Advising Office located in 3104 Tydings Hall. Drop-in schedules are posted online at http://gvpt.umd.edu/undergraduate/undergraduate-advising/.

## OPPORTUNITIES

### Combined Bachelor's/Master's Programs

The Department of Government and Politics offers two combined bachelor's/master's degree program options. Students may select to pursue a combined bachelor's/master's degree with our Master of Arts in International Relations or Master of Science in Applied Political Analytics programs. Detailed information about our masters programs is available at the following links:

- Master of Arts in International Relations (MAIR): http://academiccatalog.umd.edu/graduate/programs/international-relations-mair/
- Master of Science in Applied Political Analytics (APAN): http://academiccatalog.umd.edu/graduate/programs/applied-political-analytics-apan/

### Undergraduate Research Experience

Undergraduate GVPT majors are strongly encouraged to participate in independent research with GVPT faculty members. The independent study option provides students opportunities to work one-on-one with a faculty member doing research on a topic of the student's choosing. Students should expect to devote approximately 12 hours per week for 16 weeks to the independent study. Students should also expect to write a final research paper no less than 40 pages in length. GVPT Advisors are

available to assist students in identifying appropriate research topics and in selecting the GVPT faculty mentor.

Only six hours of graded GVPT independent study credit will apply toward the 36 hours needed in the major. Independent study opportunities are generally open only to GVPT majors with junior standing and a 3.0 GPA.

## Internships

Undergraduate GVPT majors are strongly encouraged to take advantage of the university's close proximity to Washington D.C. and Annapolis by completing at least one internship experience. The GVPT Advising Office advertises internship opportunities weekly on the undergraduate blog (http://umdgvpt.blogspot.com/), and advisors can assist students in identifying other internship opportunities.

The department offers academic credit for approved internships. Detailed information is available on the GVPT website, http://gvpt.umd.edu/undergraduate/internships/.

Only six hours of graded GVPT internship credit will apply toward the 36 hours needed in the major. Internship credit graded on a pass/fail basis may not be used to satisfy the GVPT major requirements. In no cases may more than 12 internship credits be counted towards the 120 credits needed to graduate. Internship credit is generally open only to GVPT majors with junior standing and a 3.0 cumulative GPA.

## Honors Program

The aim of the Government and Politics Honors Program is to encourage students with outstanding abilities to accelerate their development and intellectual growth under conditions of greater freedom, greater responsibility, and more individual supervision from their instructors. The program also seeks to provide a community within which students can meet one another and further develop their interests in political science and public affairs.

All students majoring in government and politics may apply for admission to the GVPT Honors Program once they have completed the first semester of their sophomore year. Additional information concerning the Honors Program may be obtained online at http://gvpt.umd.edu/undergraduate/gvpt-honors-program/.

## Student Societies and Professional Organizations

Pi Sigma Alpha, the National Political Science Honor Society, is the only honor society for college students of political science and government in the United States. The Alpha Zeta chapter of Pi Sigma Alpha was founded in 1938 at the University of Maryland, College Park. Since then, the chapter has hosted a variety of activities and worked closely with the Department of Government & Politics. For more information, please visit http://gvpt.umd.edu/undergraduate/student-organizations/.

## Scholarships and Financial Assistance

GVPT students are encouraged to apply for Government and Politics Departmental Scholarships and outside scholarship opportunities. For more information on these scholarships, please visit http://gvpt.umd.edu/undergraduate/scholarships/.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, please visit http://financialaid.umd.edu.

## Awards and Recognition

Government and Politics students have had great success in winning campus and national awards. Our students have been chosen as university commencement speaker and university medal winner. Many students are regularly selected for national undergraduate conferences and have won national scholarships for graduate and law school. The Undergraduate Director nominates deserving students for departmental and university awards and recognition, and students are informed through the advising office of new opportunities to apply.

# Government and Politics Major

**Director of Undergraduate Studies:** David Cunningham, Ph.D.

Government and Politics is one of the largest majors on campus with over 1,000 students taking courses in American politics, international relations (formal concentration available), comparative politics, political theory, political methodology and formal theory, public law, and environmental policy. Its large and diverse group of students are mentored by faculty through a variety of in and out of classroom experiences and have been extremely successful in garnering campus and national awards, acceptance to competitive law and graduate programs, and exciting careers in all levels of government and the private sector. Courses offered by this department may be found under the acronym GVPT.

# PROGRAM OBJECTIVES

The Department of Government and Politics offers programs for the general student as well as for students who are interested in careers in government, the public sector, foreign service, teaching, a variety of graduate programs, and law schools. In addition to the Government and Politics general curriculum, the department offers a formal concentration in International Relations as well as combined bachelor's/master's programs with the Master of Arts in International Relations (https://academiccatalog.umd.edu/graduate/programs/international-relations-mair/) and the Master of Science in Applied Political Analytics (https://academiccatalog.umd.edu/graduate/programs/applied-political-analytics-apan/).

The study of politics is both an ancient discipline and a modern social science. The origin of the discipline can be traced back to the earliest times when philosophers, statesmen, and citizens studied the nature of government, justice, responsibility, and the consequences of political action. More recently, the study of politics has also emphasized scientific analysis and methods of observations about politics. Today, the discipline reflects a broad effort to collect data about politics and governments utilizing relatively new techniques developed by all of the social sciences.

The Department of Government and Politics combines philosophical and scientific concerns in its overall program as well as in specific courses. It emphasizes such broad areas as political institutions, political development, policy analysis, social justice, political economy, conflict, and human rights. These broad conceptual areas are integral components of study in the discipline. The areas are commonly referred to as American government and politics; comparative politics; international relations; political theory; political methodology, and public law.

Students may choose between two curriculums, one leading to a Bachelor of Arts degree (formal concentration in International Relations available) and the other to a Bachelor of Science. The Bachelor of Arts in Government and Politics prepares students to understand and interpret political science research. The Bachelor of Science in Government and Politics is designed to provide students with the tools to produce political science research through advanced training in political methodology and data analysis.

# Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

1. Understand basic political science concepts including power, institutions, political systems, the state, political conflict, sovereignty, citizenship, authority, and justice.
2. Identify causes of systemic bias and discrimination against underrepresented groups, including racism against Black people and African Americans, and critically evaluate theories and evidence in this area.
3. Use political science concepts, modes of inquiry, and analytic skills to address contemporary problems, understand the politics of diversity, and encourage civic engagement.
4. B.A. track: Demonstrate familiarity with the methods, approaches, and theories used to interpret information applicable to the discipline of political science.
5. B.S. track: Understand, interpret, and produce empirical political science research using sophisticated quantitative methodology.
6. B.A. track: Communicate key arguments and ideas in political science effectively in writing and speaking.
7. B.S. track: Communicate key arguments and the results of empirical analyses effectively in writing and speaking.

# REQUIREMENTS

In addition to the University's general education requirements, students must earn a minimum of 36 credit hours within GVPT (and no more than 42 credit hours) total within the major. At least 18 of the 36 credits must be in upper-level courses. Students who have completed or are in the process of completing 42 credits must get permission to take additional GVPT credits. A course used to fulfill one requirement for the major may not count towards any other GVPT major requirement. A minimum grade of "C-" is required in all major requirements.

**Benchmark Requirements**

In accordance with the University's policies, the Department of Government and Politics expects students to make timely progress toward graduation. To help measure progress during the early stages of a student's studies in government and politics, students must complete all coursework designated as benchmarks within a specified number of semesters in order to continue in the major.

**Bachelor of Arts**
**Benchmark 1**
Students must complete the following four courses within two semesters of entering the major:

- GVPT170 with a grade of C- or higher
- One 200-level GVPT course with a grade of C- or higher (may not be experiential learning)
- One of STAT100, MATH107, MATH120, MATH135, MATH136, or MATH140 with a grade of C- or higher
- Academic Writing with a grade of C- or higher

*Note:* At least one of the GVPT courses must not be from AP/IB/CLEP credit.

**Bachelor of Science**
**Benchmark 1**
Students must complete the following four courses within two semesters of entering the major:

- GVPT170 with a grade of C- or higher
- GVPT201 with a grade of C- or higher
- One of STAT100, MATH107, MATH120, MATH135, MATH136, or MATH140 with a grade of C- or higher
- Academic Writing with a grade of C- or higher

**Benchmark 2**
Students must complete the following course within one semester of completing Benchmark 1:

- GVPT320 with a grade of C- or higher

# Requirements for the Bachelor of Arts

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 246) | | |
| **Required Courses** | | |
| GVPT170 | American Government | 3 |
| Select one of the following: | | 3-4 |
| STAT100 | Elementary Statistics and Probability | |
| MATH107 | Introduction to Math Modeling and Probability | |
| MATH120 | Elementary Calculus I | |
| MATH135 | Discrete Mathematics for Life Sciences | |
| MATH136 | Calculus for Life Sciences | |
| MATH140 | Calculus I | |
| **GVPT Theory Requirement** | | |
| GVPT241 | The Study of Political Philosophy: Ancient and Modern | 3 |
| **GVPT Methods Requirement** | | |
| GVPT201 | Scope and Methods for Political Science Research | 3 |
| **GVPT Courses of Choice** | | |
| GVPT Courses of Choice (any level) | | 9 |
| GVPT Courses of Choice 300-400 level | | 18 |
| **Skills Requirement** | | |
| ECON200 | Principles of Microeconomics | 3 |
| Completion of a foreign language through the entire elementary level [1] | | 4-12 |
| Quantitative Skills course [2] | | 3 |

| | |
|---|---|
| Additional Skills course (Intermediate-level foreign language course or additional quantitative course from approved list [1,2] | 3-6 |
| **Total Credits** | **52-64** |

1 See GVPT website for approved foreign language course list, https://gvpt.umd.edu/undergraduate/major-requirements (https://gvpt.umd.edu/undergraduate/major-requirements/). Students may be eligible for exemption from the foreign language requirement(s) based on demonstrated language proficiency, see GVPT website for details.

2 See GVPT website for approved Quantitative Skills course list, https://gvpt.umd.edu/undergraduate/major-requirements (https://gvpt.umd.edu/undergraduate/major-requirements/).

## Requirements for the International Relations Concentration

*(International Relations Concentration available with Bachelor of Arts only)*

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 246) | | |
| **Required Courses** | | |
| GVPT170 | American Government | 3 |
| Select one of the following: | | 3-4 |
| STAT100 | Elementary Statistics and Probability | |
| MATH107 | Introduction to Math Modeling and Probability | |
| MATH120 | Elementary Calculus I | |
| MATH135 | Discrete Mathematics for Life Sciences | |
| MATH136 | Calculus for Life Sciences | |
| MATH140 | Calculus I | |
| **GVPT Theory Requirement** | | |
| GVPT241 | The Study of Political Philosophy: Ancient and Modern | 3 |
| **GVPT Methods Requirement** | | |
| GVPT201 | Scope and Methods for Political Science Research | 3 |
| **GVPT International Relations Foundational Courses** | | |
| GVPT200 | International Political Relations | 3 |
| GVPT280 | The Study of Comparative Politics | 3 |
| or GVPT282 | The Politics of Global Development | |
| **GVPT Courses of Choice** | | |
| GVPT Course of Choice (any level) | | 3 |
| GVPT Course of Choice 300-400 level (any subfield) | | 3 |
| GVPT IR/Comparative Courses of Choice 300-400 level [1] | | 15 |
| **Skills Requirements** | | |
| ECON200 | Principles of Microeconomics | 3 |
| Completion of a foreign language through the entire elementary level [2] | | 4-12 |
| Quantitative Skills course [3] | | 3 |
| Intermediate-level foreign language course [2] | | 3-6 |
| **Total Credits** | | **52-64** |

1 See GVPT website for approved IR/Comparative course list, https://gvpt.umd.edu/undergraduate/major-requirements (https://gvpt.umd.edu/undergraduate/major-requirements/).

2 See GVPT website for approved foreign language course list, https://gvpt.umd.edu/undergraduate/major-requirements (https://gvpt.umd.edu/undergraduate/major-requirements/). Students may be eligible for exemption from the foreign language requirement(s) based on demonstrated language proficiency, see GVPT website for details.

3 See GVPT website for approved Quantitative Skills course list, https://gvpt.umd.edu/undergraduate/major-requirements (https://gvpt.umd.edu/undergraduate/major-requirements/).

## Requirements for the Bachelor of Science

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 246) | | |
| **Required Courses** | | |
| GVPT170 | American Government | 3 |
| Select one of the following: | | 3-4 |
| STAT100 | Elementary Statistics and Probability | |
| MATH107 | Introduction to Math Modeling and Probability | |
| MATH120 | Elementary Calculus I | |
| MATH135 | Discrete Mathematics for Life Sciences | |
| MATH136 | Calculus for Life Sciences | |
| MATH140 | Calculus I | |
| GVPT201 | Scope and Methods for Political Science Research | 3 |
| GVPT320 | Advanced Empirical Research | 3 |
| **GVPT Methods Requirements** | | |
| GVPT Methods Course 300-400 level [1] | | 3 |
| GVPT Quantitative Methods Courses 300-400 level [1] | | 6 |
| **GVPT Foundational Courses** | | |
| Select one of the following: | | 3 |
| GVPT200 | International Political Relations | |
| GVPT280 | The Study of Comparative Politics | |
| GVPT282 | The Politics of Global Development | |
| **GVPT Courses of Choice** | | |
| GVPT Courses of Choice (any level) | | 6 |
| GVPT Courses of Choice 300-400 level | | 9 |
| **Skills Requirements** | | |
| ECON200 | Principles of Microeconomics | 3 |
| Completion of a foreign language through the entire elementary level [2] | | 4-12 |
| Quantitative Skills courses [3] | | 6 |

1 See GVPT website for approved GVPT Methods and Quantitative Methods course options, https://gvpt.umd.edu/undergraduate/major-requirements (https://gvpt.umd.edu/undergraduate/major-requirements-courses/).

2 See GVPT website for approved foreign language course list, https://gvpt.umd.edu/undergraduate/major-requirements (https://gvpt.umd.edu/undergraduate/major-requirements/). Students may be eligible for exemption from the foreign language requirement(s) based on demonstrated language proficiency, see GVPT website for details.

3 See GVPT website for approved Quantitative Skills course list, https://gvpt.umd.edu/undergraduate/major-requirements (https://gvpt.umd.edu/undergraduate/major-requirements/).

## GRADUATION PLANS

Click here (https://fellercenter.umd.edu/academic-advising/forms-policies/graduation-plans/) for roadmaps for graduation plans in the College of Behavioral and Social Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# International Development and Conflict Management Minor

2117 Chincoteague Hall
Phone: 301-314-7703
midcminfo@umd.edu
http://cidcm.umd.edu/landing/MIDCM/

**Program Director:** John McCauley, Ph.D.

The minor in International Development and Conflict Management is a 16-credit, undergraduate program of instruction designed for students who aspire to gain theoretical understanding and practical skills necessary to address critical global concerns related to development and conflict -- and at their intersection.

Applications are accepted on a rolling basis, and enrolled students begin the program in the fall semester. Students applying for the program must be entering their sophomore, junior, or senior year of undergraduate study. Applicants must be full-time students in good standing, with a cumulative GPA of 2.5 or better. Up to 70 students are accepted into the program each year.

For more information about the minor and access to application materials, please visit: http://cidcm.umd.edu/landing/MIDCM/.

## REQUIREMENTS

**Notice of Addendum:** requirements for this program were updated effective Spring 2025 and have been published on ADDENDA TO THIS CATALOG (p. 1114).

Requirements for the minor include the following coursework:

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| GVPT354 | International Development and Conflict Management | 3 |
| GVPT355 | Capstone in International Conflict Management | 3 |
| GVPT356 | Capstone in International Development | 3 |
| ELECTIVE | Global Perspectives Elective courses from approved list | 3 |
| BSOS388 | Behavioral and Social Sciences Special Topics (BSOS388E-Minor Practicum) | 1 |
| METHODS | One research methodology course from approved list | 3 |
| **Total Credits** | | **16** |

**Note:** Six credits (or two courses) can be double counted for your major and the minor. Classes must generally be completed after acceptance into the minor program, with the exception of the elective and methods requirements.

All courses used to satisfy the requirements of the minor must be completed with a grade of "C-" or better. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements.

# Hearing and Speech Sciences

**College of Behavioral and Social Sciences**
0100 LeFrak Hall
Phone: 301-405-4213
http://hesp.umd.edu

The Undergraduate degree in Hearing and Speech Sciences offers students a broad background in basic human communication processes and introduces them to the nature and treatment of disorders of speech, language, and hearing across the lifespan. Our major allows students to explore the discipline through classes, research laboratories, and clinical observations. Courses include basic sciences, anatomy and physiology, math, statistics, as well as courses specific to the study of human communication and its disorders. Hearing and Speech Sciences prepares students for graduate study by providing the foundation needed to continue their education in either speech-language pathology or audiology.

## PROGRAMS

### Major

- Hearing and Speech Sciences Major (p. 274)

### Minor

- Hearing and Speech Sciences Minor (p. 276)

## ADVISING

The coursework in Hearing and Speech Sciences requires careful sequencing. Material learned in early courses provides the foundation for later courses and some required courses are only offered during certain semesters. For this reason, advising for HESP majors and minors is **MANDATORY**. This means that each student must meet with the department academic advisor each semester prior to registering for classes. Students will be notified by e-mail of their registration date or they may check their registration status by going to Testudo (https://www.testudo.umd.edu/) and clicking on “Appointment and Registration Status.” Students should schedule an advising meeting **no sooner** than two weeks prior to their registration date, as this prevents students from having to return for another appointment due to closed classes. Advising appointments may be made by going to http://hespadvisingcalendar.umd.edu. Advising in the HESP major is crucial, especially for students who are changing into the major late in their academic careers or transferring from a community college. It is important to note that these students may not be able to complete the major in four years. Advising is always available to students regarding academic and major choices, career planning, and/or academic concerns.

# OPPORTUNITIES

## Undergraduate Research Experience

Undergraduate research experience is invaluable for students in the Hearing and Speech Sciences major. Direct interaction with a faculty member and participation in a research lab enhances the undergraduate educational experience and also serves as an important part of a graduate school application. Students are encouraged to become involved by exploring research topics listed by faculty members on the HESP website (https://hesp.umd.edu/undergraduate/how-get-involved/#id_research). Students may work with faculty members on a one-to-one basis as a volunteer research assistant or receive credit for their experience. The number of credits that a student may earn is determined by the faculty researcher. Typically the student is expected to work three hours for each credit earned in a semester. Unless the student is involved in true independent research, they should enroll in HESP499 with the Pass/Fail grade option. Please note that individual professors may have special requirements for participation in their research program. Students will need to contact the professor that they wish to work with before enrolling in HESP499. Once a student has obtained permission from the faculty member, they should contact the academic advisor who will give them the faculty member's section number and remove the registration block so that they can register. The university limit for 499 credits is six.

## Internships

Internships (even if they are not directly related to Hearing and Speech) are an excellent way to obtain experience in the workplace. Although internships are not a requirement of the HESP curriculum, students are encouraged to explore related experiences through the College of Behavioral and Social Sciences Internship program. Information about these opportunities can be found on the BSOS website. (https://bsosundergrad.umd.edu/engagement/internships/)

## The HESP Honors Program

The objective of the HESP Honors program is to encourage and recognize superior academic achievement and scholarship by providing opportunities for interested, capable, and energetic undergraduates to engage in independent study. A research project will be conducted under the supervision of a faculty mentor and will result in an Honors thesis. Additional information as well as eligibility and application requirements, can be found on the HESP website (https://hesp.umd.edu/undergraduate/honors-hearing-and-speech-sciences-undergraduate-students/).

## Hearing and Speech in the Evening (HESPIE)

This program provides the pre-requisite coursework needed to apply to most hearing and speech sciences graduate programs. With HESPIE, you'll acquire the knowledge of basic communication processes, as well as an understanding of speech, language, and hearing disorders and differences—including etiologies, characteristics, prevention, assessment, and intervention. HESPIE is a 15-month, eight-course, non-degree, post-baccalaureate program that provides a strong background for graduate training in Speech-Language Pathology, Audiology, and in Hearing, Language, or Speech Sciences. The program is offered in two learning options: in-person or 100% online. Please contact hespie@umd.edu for more information or visit the HESPIE website (https://hesp.umd.edu/graduate/hearing-and-speech-evening-%28hespie%29/).

## Student Societies and Professional Organizations

There are two organizations that hearing and speech science majors are invited to join. They are the University of Maryland's Chapter of the National Student Speech-Language and Hearing Association (https://www.nsslha.org/) (NSSLHA) and the Student Academy of Audiology (https://saa.audiology.org/) (SAA). Both organizations are involved in fund raising, sponsoring educational speakers and participating in community service activities. Students can obtain leadership skills by serving as an officer in either organization.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (https://financialaid.umd.edu/) (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. Although there is no financial support for undergraduates provided by the department, there is an endowed scholarship that students who are interested in pursuing graduate study in Audiology, may apply for in their junior year. See information about the Karin E. Young Award (https://hesp.umd.edu/undergraduate/karin-e-young-memorial-endowment-award/).

## Academic Programs and Departmental Facilities

The Department of Hearing and Speech Sciences offers students numerous opportunities to interact with faculty in teaching, research and clinical experiences. Faculty welcome the participation of undergraduates in their research laboratories. The Hearing and Speech Clinic (http://hespclinic.umd.edu/) as well as the Language Learning Early Advantage Program (LEAP preschool (https://hesp.umd.edu/clinic/leap-preschool/)) in Lefrak Hall provide students the opportunity to see the interaction between clinical and research efforts.

# Hearing and Speech Sciences Major

**Department Chair:** Rochelle Newman, Ph.D.
**UG Program Director:** Jared Novick, Ph.D.

Hearing and speech sciences is an inherently interdisciplinary field, integrating knowledge from the physical and biological sciences, medicine, psychology, linguistics, and education in order to understand human communication and its disorders. The department curriculum leads to the Bachelor of Arts degree. An undergraduate major in this field primarily provides the background for graduate training in Speech-Language Pathology or Audiology. However, it is also an excellent preparation for students who wish to pursue graduate study in other disciplines such as: occupational therapy, physical therapy, special education, or nursing. The student who wishes to work professionally as a speech-language pathologist or audiologist must obtain a graduate degree in order to meet national certification requirements and state licensure laws.

The hearing and speech sciences curriculum is designed in part to provide supporting course work for majors in related fields, so most course offerings are available to both departmental majors and non-majors. Courses offered by this department may be found under the following acronym: HESP. Permission of an instructor may be obtained

to waive course prerequisites for non-majors wishing to take hearing and speech courses of personal interest.

## Admission to the Major

The undergraduate program in HESP is not a limited enrollment major. The program is structured to provide adequate background for graduate training in Speech-Language Pathology, Audiology and Speech, Language or Hearing Sciences. It is considered to be a pre-professional program. It is important for HESP students to understand that in order to pursue a career as a Speech Language Pathologist or Audiologist, **you must continue on to graduate study.** Further information regarding education and training for these careers can be found on the American Speech-Language Hearing Association (https://www.asha.org/students/) website. Students should be advised that graduate school admissions are **highly competitive**; therefore students must perform to the best of their ability throughout the entire undergraduate curriculum in order to be considered for admittance into any graduate program. The coursework in Hearing and Speech Sciences requires careful sequencing. Material learned in early courses provides the foundation for later courses and some required courses are only offered during certain semesters. **For this reason most HESP courses have required pre-requisites and academic advising is crucial.** This also means that students transferring into the major late in their academic careers or transferring from a community college, may not be able to complete the major in four years.

## Program Objectives

The Department of Hearing and Speech Sciences strives to provide state-of-the-art teaching, research, and clinical services in the areas of Audiology and Speech-Language Pathology.

## Program Learning Outcomes

The undergraduate curriculum in Hearing and Speech Sciences is structured to provide a strong background for graduate training in Speech-Language Pathology, Audiology and Hearing, Language or Speech Sciences. Although required courses at the undergraduate level are identical for all undergraduate majors, emphasis can be given to individual curricula through the selection of elective courses. Having completed the degree program, students should have acquired the following knowledge and skills:

1. Demonstrate knowledge in the areas of neuroanatomy and neurophysiology as they relate to typical and atypical speech, language, and hearing.
2. Demonstrate knowledge of typical language acquisition by completing an accurate language sample analysis.
3. Demonstrate knowledge retention of the information required to complete an accurate language sample.
4. Demonstrate the ability to write a behavioral objective containing 1) a “Do” or “action” statement, 2) a “Condition” statement, and 3) a Criterion statement.
5. Identify how culture and linguistic differences impact the prevention, assessment, and treatment of communication, speech, language, and hearing.
6. Engage in culturally-responsive practices that consider the needs and interests of clients and families.

# REQUIREMENTS

Students majoring in Hearing and Speech Sciences must complete 33 semester hours of required HESP courses in order to complete their degree. In addition to these HESP courses, students must also complete 12 semester hours of supporting courses in psychology, statistics and other related fields. 14 credits in the major also overlap with the University of Maryland's General Education courses.

All courses required for the HESP major must be completed with a grade of "C-" or better. In addition, when a HESP course has a listed pre-requisite, this pre-requisite must have been completed with a grade of "C-" or better before registration in the subsequent course will be approved.

**Because course sequencing is extremely important, advising for HESP majors is mandatory prior to registration each semester.**

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 246) | | |
| **Required Courses** | | |
| HESP120 | Introduction to Linguistics (Also fulfills either DSHS or DSSP General Education Requirement) | 3 |
| HESP202 | Introduction to Hearing and Speech Sciences | 3 |
| HESP300 | Introduction to Psycholinguistics | 3 |
| HESP305 | Anatomy and Physiology of the Speech Mechanism (Offered fall semester only) | 3 |
| HESP311 | Anatomy, Pathology and Physiology of the Auditory System (Offered spring semester only) | 3 |
| HESP400 | Speech and Language Development in Children | 3 |
| HESP403 | Introduction to Phonetic Science | 3 |
| HESP407 | Bases of Hearing Science (Offered spring semester only) | 3 |
| HESP411 | Introduction to Audiology | 3 |
| **Select one of the following Disorder Courses:** | | **3** |
| HESP402 | Language and Phonological Disorders in Children (Offered spring semester only) [4] | |
| HESP404 | | |
| HESP406 | Acquired Neurogenic Communication Disorders in Adults [4] | |
| HESP498 | Seminar (in Hearing and Speech Sciences, topics vary) | |
| **Select one of the following Elective Courses** | | |
| HESP386 | Experiential Learning [1] | |
| HESP388 | [1] | |
| HESP389 | LEAP Classroom Internship [1] | |
| HESP402 | Language and Phonological Disorders in Children | |
| HESP404 | | |
| HESP406 | Acquired Neurogenic Communication Disorders in Adults | |
| HESP413 | Aural Rehabilitation/Habilitation [4] | |
| HESP415 | Principles and Methods in Speech-Language Pathology [4] | |
| HESP416 | Principles and Methods in Audiology (Offered only in the fall semester) [4] | |
| HESP417 | Principles and Methods in Speech-Language Pathology and Audiology [4] | |
| HESP418 | Clinical Practice in Speech-Language Pathology and Audiology [1] | |
| HESP422 | Neurological Bases of Human Communication [4] | |
| HESP469 | Honor Thesis Research [1] | |

| | | |
|---|---|---|
| HESP498 | Seminar (in Hearing and Speech Sciences, topics vary) | |
| HESP499 | Independent Study [1] | |
| **Additional HESP Major Requirements (These may also fulfill General Education Requirements)** | | |
| PSYC100 | Introduction to Psychology (fulfills DSHS General Education Requirement ) [2] | 3 |
| Select one of the following Statistic courses: Fulfills FSAR General Education Requirement [2] | | 3 |
| EDMS451 | Introduction to Educational Statistics | |
| PSYC200 | Statistical Methods in Psychology | |
| BIOM301 | Introduction to Biometrics | |
| Select two courses from Allied/Related Fields. The most recent list of courses fulfilling this requirement can be obtained from the HESP Academic Advisor | | 6 |
| PHYS102 & PHYS103 | Physics of Music and Physics of Music Laboratory [2] | 4 |
| BSCI170/171 or BSCI103 OR any Biology course based on the biology of human systems [2,3] | | 3-4 |
| **Total Credits** | | **49-50** |

[1] Internships, clinical or research experiences do not fulfill the Elective Course requirement.

[2] These courses also satisfy national certification standards (https://www.asha.org/Certification/Course-Content-Areas-for-SLP-Standards/) for Speech Language Pathology and Audiology.

[3] Must be based on the biology of the **human** system and not plants or insects.

[4] These courses are not required for the HESP major, however, some of these courses MAY be pre-requisite courses for some graduate programs. Students should consult the websites of the graduate programs in which they are planning to apply, to ensure that they take all the courses which are pre-requisites for those programs.

## Other Requirements for the Major

The coursework in Hearing and Speech Sciences requires careful sequencing. Material learned in early courses provides the foundation for later courses and some required courses are only offered during certain semesters. **For this reason most HESP courses have required pre-requisites and academic advising is crucial.** This also means that students transferring into the major late in their academic careers or transferring from a community college, may not be able to complete the major in 4 years.

# GRADUATION PLANS

Click here (https://fellercenter.umd.edu/academic-advising/forms-policies/graduation-plans/) for roadmaps for graduation plans in the College of Behavioral and Social Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Hearing and Speech Sciences Minor

**Hearing and Speech Sciences (HESP)**

0100 LeFrak Hall
Phone: 301-405-4213
http://hesp.umd.edu

**Department Chair:** Rochelle Newman, Ph.D.
**UG Program Director:** Jared Novick, Ph.D.

This course sequence acquaints students with the primary basic science background in the speech, language and hearing sciences, and permits students to select two courses in the specific professional areas of speech language pathology or audiology.

This minor serves two different purposes:

1. A minor in HESP can be used to **complement** a major in a related field such as Special Education, Human Development, Linguistics, Psychology, Education or a Foreign Language. It allows a student to understand the relationship between speech, language and hearing, normal development, and their related disorders. It also encourages collaboration between this discipline and related ones.
2. This minor can also be utilized for students who are in other majors but have decided to **pursue graduate studies in either Speech-Language Pathology or Audiology.** These courses are widely viewed as potential pre-requisites to such programs and constitute a **proportion, but not all,** of the prerequisites needed for eventual certification with an M.A. in Speech-Language Pathology or an Au. D. in Audiology. Additional coursework would be required by any graduate program and by the American Speech-Language Hearing Association. Any student interested in pursuing a HESP Minor for this purpose is strongly encouraged to meet with the HESP Academic Advisor to ensure that eventual educational goals are properly addressed.

The HESP minor **DOES NOT** qualify an individual to work professionally as a Speech-Language Pathologist, or an Audiologist, but does provide **a proportion but not all** of the coursework required to practice in the State of Maryland as a Speech-Language Pathology Assistant.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| HESP202 | Introduction to Hearing and Speech Sciences | 3 |
| HESP300 | Introduction to Psycholinguistics | 3 |
| HESP400 | Speech and Language Development in Children | 3 |
| HESP403 | Introduction to Phonetic Science | 3 |
| HESP407 | Bases of Hearing Science (Offered spring semester only) | 3 |
| **Elective Area** | | |
| Select two courses in one of the two following elective areas | | 6 |
| Elective Option 1 (Speech-Language Pathology Focus): | | |
| HESP305 | Anatomy and Physiology of the Speech Mechanism (Offered fall semester only) | |
| In addition to HESP305, select one of the following Disorder classes: | | |
| HESP402 | Language and Phonological Disorders in Children (Offered spring semester only) | |
| HESP404 | | |
| HESP406 | Acquired Neurogenic Communication Disorders in Adults | |

| | | |
|---|---|---|
| HESP498 | Seminar (Topics vary) | |
| Elective Option 2 (Audiology focus): | | |
| HESP311 | Anatomy, Pathology and Physiology of the Auditory System (Offered spring semester only) | |
| HESP411 | Introduction to Audiology | |
| **Total Credits** | | **21** |

**Notes:**

- All classes must be completed with a grade of "C-" or better.
- As with HESP majors, students must obtain a grade of "C-" or better in a class in order to enroll in any courses that require that class as a prerequisite.
- Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements.

# Law and Society Minor

1117 Chincoteague Hall
Phone: 301-405-3179
http://mlaw.umd.edu

**Program Director:** Robert Koulish, Ph.D.

The minor in Law and Society focuses on exploring the relationship between law and society. While enrolled in this minor course of study, students will focus on how the law is viewed in a practical and pragmatic way. The intent and the experience that the law brings into various industries and society as a whole is explored and analyzed through a societal lens. The minor is intended for students interested in expanding their knowledge and skills of laws and the effect of laws in any industry. The minor is appropriate for students in preparation for law school, graduate school, and careers in the non-profit, public and private sectors. The program consists of an integrated, interdisciplinary package of courses in research and analytic methods in applied social sciences, law and humanities.

The Law and Society minor is a limited enrollment program. Students are encouraged to apply early and are eligible to reapply if they are not accepted. Applications are accepted on a rolling basis and are found on the minor website.

## Program Learning Outcomes

1. Skills to interpret the law through a societal lens
2. Skills to read, interpret, and apply legal cases, statutes, and administrative laws
3. Critical thinking skills that can be applied in any profession
4. Critical thinking skills that can be applied in a social justice context while problem solving
5. Skills to utilize legal reasoning to issue spot and problem solve
6. Skills that help with the foundation of an education focusing on the law

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| MLAW304 | Introduction to Law and Social Inquiry | 3 |
| MLAW305 | Law and Legal Institutions in Social Context | 3 |
| MLAW388 | Law and Society Internship | 3 |
| MLAW404 | Law & Society Capstone | 3 |
| Law and Society Electives | | 6 |
| **Total Credits** | | **18** |

# Psychology

**College of Behavioral and Social Sciences**
1121 Biology-Psychology Building
Phone: 301-405-5862
psycadvising@umd.edu
http://psyc.umd.edu

Psychology is a remarkably broad field that studies mind and behavior at all levels of analysis ranging from the micro to the macro; from single cells to complex systems; from individuals to groups and cultures; and from invertebrates to humans. Our department is committed to research, teaching/mentorship, diversity, equity and inclusion, and service.

## PROGRAMS

### Majors

- Neuroscience Major (BSOS) (p. 279)
- Psychology Major (p. 282)

### Minor

- Neuroscience Minor (p. 281)

## ADVISING

The Department of Psychology's Office of Undergraduate Studies has three full-time academic advisors to assist you every step of the way. Advising is not mandatory, but we strongly encourage all students to schedule an appointment at least once a semester, particularly first year freshmen, new psychology majors, and first semester transfer students to take advantage of advising. Advisors are located in the Biology-Psychology Building Room 1121.

Some examples of common advising services include assistance with:

- Strategies for degree completion
- Opportunities in the psychology major
- Department and university policies
- Career and internship opportunities
- Research opportunities
- Social and personal adjustment to university life
- Preparation for graduate study
- Other ways to enrich your undergraduate experience

For assistance via email write PSYCadvising@umd.edu.

Drop-in advising: Monday through Friday 10 a.m. - noon, and Monday through Thursday 1 p.m. - 3 p.m. No appointment is necessary.

Appointments: Call **301-405-5866** to schedule appointments.

Contact information for the staff of the Office of Undergraduate Studies can be found on http://psyc.umd.edu/undergraduate/psyc-advising/.

# OPPORTUNITIES

## Undergraduate Research Experiences

Research experience is strongly encouraged for students who wish to pursue graduate training in psychology. The faculty welcome undergraduate research students into their labs, and every semester over 100 students take advantage of these opportunities. The Office of Undergraduate Studies advertises opportunities for students to participate in research. See http://ter.ps/PSYCblog/ and subscribe to receive announcements by email. Many students also find research opportunities on their own by approaching individual faculty members and graduate students with whom they share common research interests.

Freshmen and sophomore students can participate as a Maryland Student Researcher in the Maryland Center for Undergraduate Research. Students participating in this program have the opportunity to work individually with faculty members.

If eligible, students can earn academic credit for research participation (maximum of 9 credits) through PSYC479, Independent Research in Psychology. Applications and requirements for PSYC479 are available here: http://psyc.umd.edu/undergraduate/psyc-forms/.

## Internships

The Washington D.C. Area is rich in offering a variety of high-quality psychological research and practice opportunities. These include research organizations, training and service-delivery agencies, and institutions involved in legal, policy, and legislative concerns that intimately affect the psychological well-being of the nation. Opportunities for field experience exist in all areas of psychology.

Working with psychologists and related professionals in these settings can be a source of considerable enrichment for you. You can apply your classroom learning, test out your interests and skills in psychology, and receive training in a specialized aspect of psychology which is not available on campus.

The Psychology E-News Blog (http://umdpsyc.blogspot.com), the University Career Center and the President's Promise (https://careers.umd.edu), and individual organizations in the area are all good sources for you to consult in your search for an internship experience. Some additional tips on finding internships are posted online here: http://psyc.umd.edu/undergraduate/searching-internship/.

If you have identified a psychology-related internship opportunity and would like it to be considered for academic credit, you should download and submit the PSYC389 contract online (https://psyc.umd.edu/undergraduate/psyc-forms/), once you are sure that you meet the requirements.

## Honors Program

The Honors Program in Psychology is designed to enrich and accelerate the acquisition of knowledge in the field. The goals of the honors program of the psychology department include:

- Train students to think as independent scholars.
- Provide opportunities for close, scholarly analysis of significant topics in psychology.
- Encourage and provide opportunities for students to undertake independent research.
- Introduce students to a broad range of advanced psychological principles and methodologies.

Details about program eligibility and how to apply are posted here: http://psyc.umd.edu/undergraduate/psyc-honors-program/.

For more information about the Honors Program in Psychology please call 301-405-5866 to schedule an appointment with the Assistant Director of Undergraduate Studies.

## Psychology Research Empowerment Program (PREP)

The Psychology Research Empowerment Program seeks strengthen the pipeline from first year to Ph.D. for students who are first in their families to attend college, psychology majors who transfer from a community college, those experiencing financial difficulty, and/or members of groups that are underrepresented in psychology doctoral programs.

Students admitted into PREP will participate in a comprehensive four-year program which will begin with research participation in the first year, and culminate with assistance with graduate school applications during senior year. Additionally, students will receive intensive academic advising, faculty mentoring, career development support throughout their time as undergraduate psychology majors.

### Benefits of PREP

- Early involvement in research
- Increased knowledge and participation in the psychology department
- Networking with peers, faculty, and advisors
- Professional development
- Increased knowledge regarding graduate programs and applications

## Student Societies and Professional Organizations

The University of Maryland chapter of the **Psi Chi International Honor Society in Psychology** provides membership to students who meet the application requirements. Psi Chi members abide by the core values of scholarship, service, and community, receive academic recognition for their achievements in psychology, and have the opportunity to connect and build relationships with other members, faculty members, and professionals. Details and contact information about Psi Chi can be found on the chapter's website: http://umdpsichi.weebly.com.

The **Undergraduate Psychology Association** is an educational organization created to facilitate engagement within the department, build a sense of community, promote professional/career development, and provide accessible resources and networking opportunities. The program aims to support and engage UMD psychology students through leadership, networking with fellow psych students and faculty, and facilitating the growth and success of new students. The organization is also committed to giving students a way to connect with PSYC-related activities (e.g. research labs) and resources (e.g. RStudio Workshops, LinkedIn Workshops, research lab application guidance) as well as provide more support systems for underrepresented students. To learn more, please email undergraduatepsycassociation@gmail.com.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in

cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Awards and Recognition

- The **Mark S. Harper Award for Excellence in Psychology** is given annually at the spring commencement to the graduating senior who best exemplifies the spirit of Mark, a UM Psychology graduate. The top 10 percent of the graduating class are eligible to be nominated by a faculty member for the award.
- The department's **Award for Excellence in Student Leadership** goes to a student nominated by their peers for an outstanding commitment to advancing the opportunities and achievements of fellow psychology majors, students and community members.
- The **Harper Travel Award** provides travel support for students presenting their research at professional conferences. Please contact the undergraduate office for more information and an application form.
- The **Award for Outstanding Accomplishments in Psychology** recognizes up to 10 students graduating seniors who have made impactful contributions on the undergraduate program, the field, or their communities.

## Academic Programs and Departmental Facilities

State of the art research labs in the Psychology Department provide students with opportunities for studies in clinical and counseling psychology, cognitive and neural systems, developmental psychology, and social, decisional and organizational sciences. Students benefit from a close relationship with the University Counseling Center. The new Maryland Neuroimaging Center makes available facilities for several types of functional brain imaging including fMRI and high-density EEG.

# Neuroscience Major (BSOS)

**Program Director:** Hilary Bierman, Ph.D.

The Neuroscience major is jointly offered by the Departments of Biology (p. 324) in the College of Computer, Mathematical, and Natural Sciences and Psychology (p. 277) in the College of Behavioral and Social Sciences.

The Neuroscience major offers rigorous training in the interdisciplinary study of brain and behavior. Students complete a required set of NEUR courses as well as a supporting sequence of coursework in mathematics, biology, chemistry, physics, and psychology. Students then choose an upper-level specialization and coursework in (1) cellular, molecular, and physiological neuroscience or (2) behavioral and cognitive neuroscience. The Neuroscience major prepares students for a broad range of career paths including: scientific research, medicine, clinical psychology, allied health professions, or science-related government, nonprofit, or private sector employment.

## Admission to the Major

The Neuroscience major is a Limited Enrollment Program. Information on limited enrollment programs can be found at: http://lep.umd.edu.

**Transfer Admission Requirements**

Students beyond their first semester and those off campus wishing to transfer are required to meet the following gateway criteria:

- Completion of MATH130, MATH135 or MATH140 with a minimum grade of C-
- Completion of BSCI170 AND BSCI171 (formerly BSCI105) and BSCI160 AND BSCI161 (formerly BSCI106) with a minimum grade of C-
- Completion of CHEM131 AND CHEM132 and CHEM231 AND CHEM232 with a minimum grade of C-

A minimum grade point average of 2.7 in all courses taken at the University of Maryland and all other institutions is required for internal and external transfer students.

## Program Learning Outcomes

1. Demonstrate a knowledge base in the field of neuroscience and supporting disciplines.
2. Describe the current techniques and strategies in neuroscience research.
3. Demonstrate competence in scientific reasoning and critical thinking.
4. Demonstrate effective effective professional scientific communication skills.
5. Describe the role of neuroscience in social and cultural contexts as well as the influences of social and cultural context on neuroscience: understand the influences, current and potential, of neuroscience on other fields such as medicine, education, the arts, and the social sciences, recognize the relationships between scientific research and the culture(s) in which it is embedded, and understand and follow ethical practices in academic study, scientific research, and professional life. Students will be able to demonstrate how neuroscience research has been used to oppress and marginalize groups through history and how it might be used to mitigate disparities.
6. Demonstrate an appreciation of possible career paths available to students proficient in neuroscience.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **NEUR Required Courses** | | |
| NEUR200 | Introduction to Neuroscience | 3 |
| NEUR305 | Neural Systems and Circuits | 3 |
| NEUR306 | Cellular and Molecular Neuroscience | 3 |
| NEUR405 | Neuroscience Laboratory | 3 |
| **Required Supporting Courses** | | |
| MATH135<br>or MATH140 | Discrete Mathematics for Life Sciences<br>Calculus I | 4 |
| MATH136<br>or MATH141 | Calculus for Life Sciences<br>Calculus II | 4 |
| STATISTICS | BIOM301, EPIB315, PSYC200, STAT400, STAT464, or DATA400 | 3 |
| BSCI170<br>& BSCI171 | Principles of Molecular & Cellular Biology<br>and Principles of Molecular & Cellular Biology Laboratory | 4 |
| BSCI160<br>& BSCI161 | Principles of Ecology and Evolution<br>and Principles of Ecology and Evolution Lab | 4 |

| | | |
|---|---|---|
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | 4 |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | 4 |
| CHEM241 & CHEM242 | Organic Chemistry II and Organic Chemistry Laboratory II | 4 |
| CHEM271 & CHEM272 | General Chemistry and Energetics and General Bioanalytical Chemistry Laboratory | 4 |
| PHYS131 | Fundamentals of Physics for Life Sciences I | 4 |
| or PHYS141 | Principles of Physics | |
| or PHYS161 | General Physics: Mechanics and Particle Dynamics | |
| PHYS132 | Fundamentals of Physics for Life Sciences II [1] | 4 |
| or PHYS142 | Principles of Physics | |
| or PHYS260 | General Physics: Electricity, Magnetism and Thermodynamics | |
| PSYC100 | Introduction to Psychology | 3 |
| UNIV100 | The Student in the University (or equivalent) | 1 |
| **Track Courses** [2,3] | | **16-20** |
| Complete at least 5 courses, including at least 3 courses from within one track and at least 1 lab course | | |
| MOLECULAR, CELLULAR, AND PHYSIOLOGICAL TRACK [4] | | |
| BCHM463 | Biochemistry of Physiology | |
| or BCHM461 | Biochemistry I | |
| BSCI222 | Principles of Genetics | |
| or HLSC322 | Principles of Genetics and Genomics | |
| BSCI330 | Cell Biology and Physiology | |
| BSCI343 | Cellular Mechanisms of Aging and Disease | |
| BSCI357 | Neurobiology of Chemosensory Systems | |
| BSCI381 | Molecular Neuroethology | |
| BSCI402 | | |
| BSCI403 | Biology of Vision | |
| BSCI410 | Molecular Genetics | |
| BSCI415 | Molecular Genetics Laboratory | |
| BSCI430 | Developmental Biology | |
| BSCI431 | The Origin and Evolution of Nervous Systems | |
| BSCI440 | Mammalian Physiology | |
| or BSCI450 | Mammalian Systems Physiology | |
| BSCI441 | Mammalian Physiology Laboratory | |
| or BSCI451 | Mammalian Systems Physiology Laboratory | |
| BSCI446 | Neural Systems | |
| BSCI452 | Diseases of the Nervous System | |
| BSCI456 | Advanced Cellular Neuroscience | |
| KNES370 | Motor Development | |
| KNES462 | Neural Basis of Human Movement | |
| NEUR379 | Special Topics: Research in Neuroscience | |
| NEUR479 | Advanced Research in Neuroscience (Neuroscience Research Lab; BSCI399(H, L) may be substituted with permission) | |
| SPECIAL TOPICS: BSCI338, BSCI339, BSCI438 when specifically approved. Check with your advisor. | | |
| BEHAVIORAL AND COGNITIVE TRACK [4] | | |
| BSCI355 | Neurobiology of Extraordinary Senses | |
| BSCI360 | Principles of Animal Behavior | |
| BSCI401 | Animal Communication | |
| BSCI407 | Behavioral Genetics | |
| EDHD310 | Your Brain on Education: The Neuroscience of Learning and Development | |
| KNES385 | Motor Control and Learning | |
| KNES445 | Exercise and Brain Health | |
| PHIL202 | Know Thyself: Wisdom Through Cognitive Science | |
| PHIL366 | Philosophy of Mind | |
| PSYC300 | Research Methods in Psychology Laboratory | |
| PSYC302 | Fundamentals of Learning and Behavior | |
| PSYC307 | Collective Behavior and Decision Making in Human and Animal Groups | |
| PSYC310 | Perception | |
| PSYC341 | Introduction to Memory and Cognition | |
| PSYC403 | Animal Behavior | |
| PSYC404 | Introduction to Behavioral Pharmacology | |
| PSYC406 | Neuroethology | |
| PSYC407 | Behavioral Neurobiology Laboratory | |
| PSYC411 | Introduction to Functional Magnetic Resonance Imaging | |
| PSYC414 | Science of Sleep and Biological Rhythms | |
| PSYC417 | Data Science for Psychology and Neuroscience Majors | |
| PSYC442 | Psychology of Language | |
| PSYC489 | Advanced Special Topics in Psychology | |
| PSYC455 | | |
| NEUR379 | Special Topics: Research in Neuroscience | |
| NEUR479 | Advanced Research in Neuroscience (Neuroscience Research Lab; BSCI399(H, L) may be substituted with permission) | |
| SPECIAL TOPICS: PSYC489 or BSCI339 when specifically approved. Check with your advisor. | | |
| **Total Credits** | | **75-79** |

1. PHYS260 must be taken with PHYS261 to earn 4 credits
2. Three pre-approved Neuroscience Research credits can be applied to the major as one course equivalent. One a single Research course equivalent can be applied to the major.
3. Four pre-approved NEUR479 credits in the same faculty research laboratory can satisfy the lab requirement.
4. Courses may be occasionally added or removed from this list. Not all courses may be available each semester.

# GRADUATION PLANS

Click here (https://fellercenter.umd.edu/academic-advising/forms-policies/graduation-plans/) for roadmaps for graduation plans in the College of Behavioral and Social Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# ADVISING

## Advising for Neuroscience Majors

**Students in the Neuroscience major have to complete a mandatory advising appointment every semester.** Mandatory advising appointments serve as consistent touch points throughout a student's undergraduate experience. Our advising office takes a holistic advising approach. Though our priority is to guide students to achieve academic success and graduate from our major, advisors are available to discuss research, academic, and career interests, extracurricular involvement, as well as personal successes and challenges.

Students are assigned a Neuroscience Academic Advisor during their first semester in the major.

Student advising appointments are scheduled through TerpEngage (https://amp.umd.edu/terpengage/). For brief matters, majors can also utilize drop-in advising hours.

***Additional information regarding advising for current neuroscience majors can be found*** here ***(***https://neur.umd.edu/landing/Advising/***).***

## Advising for Prospective Neuroscience Majors

Current UMD students that are interested in becoming neuroscience majors are encouraged to visit our webpage, Advising for Prospective Internal Transfer Student (https://neur.umd.edu/advising/advising-prospective-internal-transfer-students/). This site provides necessary requirements and directions for how to request a prospective major advising appointment.

Currently, we are not able to provide advising appointments for external prospective majors (transfer students or incoming freshman). We encourage these students to visit our website (http://neur.umd.edu) and attend open house events (https://cmns.umd.edu/undergraduate/future-students/visit/).

***Additional information regarding advising for prospective majors can be found*** here ***(***https://neur.umd.edu/landing/Advising/***).***

# Neuroscience Minor

**Department of Psychology**
1121 Biology-Psychology Building
Phone: 301-405-5866
http://psyc.umd.edu

**Program Director:** Lori Kader, Associate Director for Undergraduate Studies

The minor in Neuroscience will give the highly qualified and motivated undergraduate an opportunity to study neuroscience. The emphasis includes study in systems, cognitive, and computational neuroscience in a manner that crosses the traditional boundaries of psychology, biological sciences, and other related disciplines. The minor is most appropriate for students who already have a background in the biological sciences or psychology.

All majors are eligible for the minor except students in the Physiology & Neurobiology (PHNB) track in Biological Sciences (BSCI) and the Neuroscience major. There are a number of science course prerequisites for the required and elective classes. Students should carefully review the prerequisites for all courses listed for the Neuroscience minor. A student without a sufficient science background may not be able to complete the minor in the allotted credits. Students may only count a maximum of two courses (6-8 credits) toward both their major degree requirements and the minor in Neuroscience.

## Eligibility and Application to the Minor

In order to apply for the minor, a student must be in good standing with the university, must have completed at least 30 college credits and at least 15 credits at UMD, and must have earned a minimum grade of C- in the prerequisite courses.

Applications for the minor in Neuroscience will be considered three times each year on October 1, March 1, and June 1. Students will be notified via email regarding the status of their application within three weeks of the submission deadline so that students will know whether or not they are accepted prior to early registration for the next semester.

Interested students should submit applications electronically via the Psychology Undergraduate Program website at http://psyc.umd.edu/undergraduate/neuroscience-minor/.

## Program Learning Outcomes

1. Students should demonstrate understanding of the important concepts in neuroscience.
2. Students should be able to read and interpret experimental data from the primary literature.
3. Students should be able to effectively communicate their ideas and results in writing.

# REQUIREMENTS

There are five required courses (15 credits) and two elective courses (6-8 credits) for a total of 21-23 credits to complete the minor. The five required courses and their prerequisites are listed below[1]. All courses used to satisfy the requirements of the minor must be completed with a grade of "C-" or better. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements.

### Prerequisites

In order to apply for the minor, a student must be in good standing with the university, must have completed at least 30 college credits and at least 15 credits at UMD, and must have earned a minimum grade of C- in the following courses:

| Course | Title | Credits |
|---|---|---|
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | 4 |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | 4 |
| NEUR200 | Introduction to Neuroscience | 3 |
| or PSYC202 | Introduction to Neuroscience | |

## Minor Requirements

| Course | Title | Credits |
|---|---|---|
| **Required Courses** [1] | | |
| PSYC300 | Research Methods in Psychology Laboratory | 4 |

| | | |
|---|---|---|
| PSYC409 | Topics in Neurosciences Seminar | 1 |
| One of the following courses: | | 4 |
| NEUR405 | Neuroscience Laboratory | |
| PSYC407 | Behavioral Neurobiology Laboratory | |
| PSYC417 | Data Science for Psychology and Neuroscience Majors | |
| One of the following courses: | | 3 |
| PSYC304 | Biological Psychology | |
| PSYC406 | Neuroethology | |
| BSCI446 | Neural Systems | |
| One of the following courses: | | 3 |
| PSYC403 | Animal Behavior | |
| PSYC302 | Fundamentals of Learning and Behavior | |
| BSCI360 | Principles of Animal Behavior | |
| **Two elective courses** [2] | | **6-8** |
| **Total Credits** | | **21-23** |

[1] Course prerequisites can be viewed by clicking on the course.

[2] A list of eligible electives can be found on the program website at psyc.umd.edu/undergraduate/neuroscience-minor (http://psyc.umd.edu/undergraduate/neuroscience-minor/).

# Psychology Major

**Director of Undergraduate Studies:** Nazish Salahuddin, Ph.D.

The undergraduate major in Psychology provides an introduction to the study of human behavior. This includes an understanding of the neurobiological, developmental, social, and evolutionary factors influencing our thought and behavior. Through that understanding comes the ability to modify behavior in beneficial ways. Courses are organized into three broad themes:

1. Mind, Brain, and Behavior;
2. Mental Health and Interventions; and
3. Social, Developmental, and Organizational Studies.

The program emphasizes a strong foundation in quantitative and research methods. Beyond coursework, students will have opportunities to assist with and conduct research, an important advantage in any career path.

Students who are interested in the biological aspects of behavior tend to choose a program leading to the Bachelor of Science (BS) degree, while those interested primarily in the impact of social factors on behavior tend to choose the Bachelor of Arts (BA) degree. The choice of program is made in consultation with an academic advisor.

Courses offered by this department may be found under the following acronym: PSYC

## Admission to the Major

In accordance with university policy, the Department of Psychology has been designated a Limited Enrollment Program (LEP) (https://admissions.umd.edu/explore/limited-enrollment-programs/). All first-time freshman who request psychology as a major will be directly admitted into the major. Other first-time freshman who wish to declare psychology as a major prior to the last day of classes of their first semester in residence will be allowed to do so.

In order to remain a psychology major, newly admitted freshman will be required to meet an academic performance review on or before the end of the semester in which they earned 45 University of Maryland credits. This standard includes:

1. Completion of PSYC100 with a grade of "B-" or higher (if the student has Advanced Placement credit for PSYC100, the student must complete PSYC221 with a grade of "B-" or higher)
2. Completion of MATH120 or MATH140 with a grade of "C-" or higher.
3. Completion of BSCI170 (Principles of Molecular and Cellular Biology) and BSCI171 (Principles of Molecular and Cellular Biology Lab) with a minimum grade of "C-" in both courses.
4. A minimum cumulative grade point average of 2.00 in all coursework taken at the University of Maryland.

All other students, including both internal and external transfer students, will be admitted to the program only if they have met the above LEP requirements and also have a minimum cumulative GPA based on all previous college-level coursework of 2.70 or higher.

**For a more detailed discussion of LEP policies visit the** Office of Undergraduate Admissions website **(**https://admissions.umd.edu/explore/limited-enrollment-programs/**) and then call 301-405-5866 to consult with one of our academic advisors.**

Any student denied admission or dismissed from the major may appeal to the Director of Undergraduate Studies in Psychology (https://psyc.umd.edu/).

Internal transfer students may appeal to the Office of the Dean for Behavioral and Social Sciences (http://bsos.umd.edu).

External transfer students may appeal to the Office of Undergraduate Admissions (http://admissions.umd.edu).

## Program Objectives

Students in the B.A. and B.S. programs in psychology will have a broad exposure to the diverse approaches to studying human behavior. They will acquire the tools and experiences necessary for successful careers utilizing their skills in the behavioral and social sciences. Their training will include a foundation in research methods, critical and creative problem solving, and effective communication. Students will also master the primary concepts and ideas representing both the breadth and depth of the fields in psychology.

## Program Learning Outcomes

Modeled after the American Psychological Association's (APA) guidelines for undergraduate training, our individual courses and the overall program curriculum are designed to prepare you as a well-rounded scholar with marketable, professional skills. For a detailed list of our learning outcomes, please navigate here: http://psyc.umd.edu/undergraduate/program-learning-objectives/.

1. Describe key concepts, principles, and overarching themes in psychology (Knowledge base in psychology)
2. Develop a working knowledge of psychology's content domains (Knowledge base in psychology)
3. Describe applications of psychology (Knowledge base in psychology)

4. Use scientific reasoning to interpret psychological phenomena (Scientific inquiry and critical thinking)
5. Engage in innovative and integrative thinking and problem solving (Scientific inquiry and critical thinking)
6. Interpret, design, and conduct basic psychological research (Scientific inquiry and critical thinking)
7. Understand sociocultural factors in scientific inquiry (Scientific inquiry and critical thinking)
8. Understand and follow ethical practices in academic study and scientific research (Ethics)
9. Understand the concepts and practice of ethical principles in a broad range of professional contexts (Ethics)
10. Understand the role of academic, professional, and personal integrity in maintaining a healthy community (Ethics)
11. Understand the socio-cultural influences on human development and behavior (Multiculturalism and diversity)
12. Demonstrate critical awareness of one's own worldview, values, and biases (Multiculturalism and diversity)
13. Exhibit the ability to work respectfully and constructively with individuals of different backgrounds, values, and experiences (Multiculturalism and diversity)
14. Demonstrate the ability to integrate multicultural concepts into psychology research, theory, practice, and service to others (Multiculturalism and diversity)
15. Demonstrate effective writing for different purposes (Communication)
16. Exhibit effective presentation skills for different purposes (Communication)
17. Interact effectively with others (Communication)
18. Professional development (Professional development)
19. Apply psychological content and skills to career goals (Professional development)
20. Refine project management skills
21. Enhance teamwork capacity (Professional development)
22. Develop meaningful professional directions for life after graduation (Professional development)

# REQUIREMENTS

All students must complete at least 35 credits (11 courses) in Psychology. The required courses include:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 246) | | |
| PSYC100 | Introduction to Psychology | 3 |
| PSYC200 | Statistical Methods in Psychology | 3 |
| PSYC300 | Research Methods in Psychology Laboratory | 4 |
| Additional Courses (course selections must follow the parameters below): | | 25 |
| There must be a minimum of two courses from each of the following three thematic areas (one of these six courses must be a designated multicultural course): [1] | | |
| Mind, Brain, & Behavior | | |
| Mental Health & Interventions | | |
| Social, Developmental, & Organizational Processes | | |
| Two of the courses must be 400 level, 3 credit PSYC courses | | |
| One of the courses must be a 4 credit PSYC lab course | | |
| **Total Credits** | | **35** |

[1] A detailed list of courses, including multicultural courses, by theme can be found at the following link: https://psyc.umd.edu/undergraduate/courses-syllabi (https://psyc.umd.edu/undergraduate/courses-syllabi/)

- A grade of "C-" or better must be earned in all 38 credits of psychology courses used for the major, except for PSYC100 (or PSYC221, if AP credit was earned for PSYC100), in which the grade must be "B-" or higher.
- No course may be used as a prerequisite unless a grade of "C-" is earned in that course prior to its use as a prerequisite.

## Bachelor of Science: Math and Science Requirement

Students pursuing the Bachelor of Science degree option must complete a minimum of 5 courses/17 credits in mathematics and science, as follows:

- At least three courses must be advanced
- At least two courses must contain a lab.
- The 5 courses/17 credits must be completed with at least a 2.0 average.
- MATH140 (highly recommended) or MATH120 (formerly MATH220) and BSCI170 plus BSCI171, may be used to satisfy part of the requirement for the B.S. degree. (MATH136 is acceptable only for declared PSYC/BSCI double majors and for students who have taken the course prior to becoming a PSYC major.)

Students should consult the following website for a list of approved advanced math and science courses for the Bachelor of Science in psychology: https://psyc.umd.edu/undergraduate/degree-requirements (https://psyc.umd.edu/undergraduate/degree-requirements/)

# GRADUATION PLANS

Click here (https://fellercenter.umd.edu/academic-advising/forms-policies/graduation-plans/) for roadmaps for graduation plans in the College of Behavioral and Social Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Social Data Science Major (BSOS)

**Notice of Addendum:** This page has been updated effective Fall 2024. See Addenda to this Catalog (p. 1116) for details.

**Program Directors:** Brian Kim, Ph.D. and Katie Shilton, Ph.D.

Creating information products that capture aspects of human behavior requires an increasingly complex set of skills and knowledge. This program combines the expertise of faculty members from the College of Information (INFO) and the College of Behavioral and Social Sciences (BSOS) to prepare students to effectively, ethically and efficiently create

high quality information products, such as datasets, visualizations, and models, about human activity and behavior. This critical suite of knowledge and skills is essential in many domains, including government, healthcare, sustainability, economics, entertainment, human rights, equity, and others. Students take a set of core courses housed primarily in INFO and BSOS's Joint Program in Survey Methodology (JPSM). They then select a track discipline, in which they train in relevant theory and methods, from among the following options: African-American Studies, Anthropology, Economics, Government and Politics/International Relations, Geography/Geospatial Information Science, Psychology, Public Health, or Sociology.

Restriction: Students are not permitted to double-major or double-degree with Social Data Science and the BSOS major associated with their track area. Students are permitted to double-major or double-degree with another BSOS major outside their Social Data Science track. Students in the Public Health track may double-major or double-degree with any School of Public Health major.

# Program Learning Outcomes

1. Design, execute, document, and disseminate research that applies tools and methods from data science to address a social science research question
2. Develop expertise in specific contemporary social science theories and data science approaches to tackling research questions related to these theories
3. Apply findings from social data science research to analyze the policy and design of socio-technical systems
4. Identify and analyze social, legal, and ethical and equity issues in social data science work and in the profession

# REQUIREMENTS

Major course requirements consist of core courses and track area courses in one of the following tracks: African American Studies, Anthropology, Economics, Geographical Sciences, Government & Politics, Psychology, Public Health, or Sociology. Students are not permitted to double-major or double-degree with Social Data Science and the BSOS major associated with their track area. Students are permitted to double-major or double-degree with another BSOS major outside their Social Data Science track. Students in the Public Health track may double-major or double-degree with any School of Public Health major. Both core courses and track courses include benchmark courses. Failure of a student to complete both sets of benchmark courses within the timeline indicated may result in probation and/or dismissal from the major. Benchmark I courses must be completed with a C- or higher within the first two semesters of the program. Benchmark II courses must be completed within the first three semesters of the program.

# Social Data Sciences Requirements

| Course | Title | Credits |
|---|---|---|
| **Benchmark I Core Courses:** | | |
| BSOS233 | Data Science for the Social Sciences | 3 |
| STAT100 | Elementary Statistics and Probability | 3 |
| Math Course (Based on Track Requirement): | | 3 |
| For African-American Studies, Anthropology, Government & Politics, and Sociology Tracks: | | |
| MATH115 | Precalculus | |
| For Economics, Geographical Sciences, Psychology, and Public Health Tracks: | | |
| MATH120 | Elementary Calculus I | |
| **Additional Core Courses:** | | |
| BSOS326 | Python Programming for the Social Sciences | 3 |
| INST327 | Database Design and Modeling | 3 |
| INST366 | Privacy, Security and Ethics for Big Data | 3 |
| INST414 | Data Science Techniques | 3 |
| INST447 | Data Sources and Manipulation | 3 |
| INST462 | Introduction to Data Visualization | 3 |
| SURV400 | Fundamentals of Survey and Data Science | 3 |
| **Capstone** | | |
| INST490 | Integrated Capstone for Information Science | 3 |
| **Track Area Courses (see below for specific requirements)** | | **12-21** |
| **Total Credits** | | **45-54** |

# African American Studies Track

| Course | Title | Credits |
|---|---|---|
| **Benchmark II Track Courses:** | | |
| AASP101 | Public Policy and the Black Community | 3 |
| **Track I Requirement:** | | |
| AASP210 | Intro to Research Design and Analysis in African American Studies | 3 |
| AASP395 | Fundamentals of Quantitative Research in Socio-Cultural Perspective | 3 |
| **Track II Requirement:** | | |
| Nine credits from the following list: | | 9 |
| AASP301 | Applied Policy Analysis and the Black Community | |
| AASP310 | African Slave Trade | |
| AASP313 | Black Women in United States History | |
| AASP314 | | |
| AASP400 | Directed Readings in African American Studies | |
| AASP402 | Classic Readings in African American Studies | |
| AASP411 | Black Resistance Movements | |
| AASP441 | Science, Technology, and the Black Community | |
| AASP443 | Blacks and the Law | |
| AASP499 | Advanced Topics in Public Policy and the Black Community | |
| **Total Credits** | | **18** |

# Anthropology Track

Students in the Anthropology track choose one of three tracks: Health, Heritage, or Environment.

| Course | Title | Credits |
|---|---|---|
| **Anthropology-Health Track** | | |
| Benchmark II Anthropology-Health Track Courses: | | |
| ANTH210 | Introduction to Medical Anthropology and Global Health | 3 |
| Anthropology-Health Track I Requirement: | | |
| INST314 | Statistics for Information Science | 3 |
| ANTH310 | Method & Theory in Medical Anthropology and Global Health | 3 |

| | | |
|---|---|---|
| Anthropology-Health Track II Requirement: | | |
| Nine credits from the following list: | | 9 |
| ANTH411 | Global Migration and Health | |
| ANTH412 | Hypermarginality and Urban Health | |
| ANTH413 | Health Disparities in the United States | |
| ANTH415 | Critical Global Health | |
| ANTH416 | Anthropology of Global Violence | |
| **Anthropology-Heritage Track** | | |
| Benchmark II Anthropology-Heritage Track Courses: | | |
| ANTH240 | Introduction to Archaeology | 3 |
| INST314 | Statistics for Information Science | 3 |
| Anthropology-Heritage Track I Requirement: | | |
| ANTH340 | Method and Theory in Archaeology | 3 |
| Anthropology-Heritage Track II Requirement: | | |
| Nine credits from the following list: | | 9 |
| ANTH341 | Introduction to Zooarchaeology | |
| ANTH440 | Theory and Practice of Historical Archaeology | |
| ANTH441 | Archaeology of Diaspora | |
| ANTH447 | Material Culture Studies in Archaeology | |
| ANTH448 | Special Topics in Archaeology | |
| ANTH451 | Environmental Archaeology | |
| ANTH464 | Anthropology of Cultural Heritage | |
| ANTH496 | Field Methods in Archaeology | |
| **Anthropology-Environment Track** | | |
| Bookmark II Anthropology-Environment Track Courses: | | |
| ANTH222 | Introduction to Ecological and Evolutionary Anthropology | 4 |
| INST314 | Statistics for Information Science | 3 |
| Anthropology-Environment Track I Requirement: | | |
| ANTH322 | Method and Theory in Ecological Anthropology | 3 |
| Anthropology-Environment Track II Requirement: | | |
| Nine credits from the following list: | | 9 |
| ANTH450 | Theory and Practice of Environmental Anthropology | |
| ANTH454 | Political Ecology | |
| ANTH456 | Conservation and Indigenous People in South America | |
| ANTH462 | Amazon Through Film | |
| ANTH467 | Researching Environment and Culture | |

# Economics Track

| Course | Title | Credits |
|---|---|---|
| **Benchmark II Track Courses:** | | |
| ECON200 | Principles of Microeconomics | 3 |
| ECON201 | Principles of Macroeconomics | 3 |
| **Track I Requirement:** | | |
| ECON230 | Applied Economic Statistics | 3 |
| ECON305 | Intermediate Macroeconomic Theory and Policy | 3 |
| or ECON306 | Intermediate Microeconomic Theory & Policy | |
| **Track II Requirement:** [1] | | |
| Six credits from the following list: | | 6 |
| ECON305 | Intermediate Macroeconomic Theory and Policy | |
| or ECON306 | Intermediate Microeconomic Theory & Policy | |
| ECON311 | American Economic History Before the Civil War | |
| ECON312 | American Economic History After the Civil War | |
| ECON315 | Economic Development of Underdeveloped Areas | |
| ECON317 | Global Economic Policies | |
| ECON330 | Money and Banking | |
| ECON340 | International Economics | |
| **Total Credits** | | **18** |

[1] The course taken for the Track I requirement may not also be used for the Track II requirement. No double-count for these two categories.

# Geographical Sciences Track

| Course | Title | Credits |
|---|---|---|
| **Benchmark II Track Courses:** | | |
| GEOG202 | Introduction to Human Geography | 3 |
| **Track I Requirement:** | | |
| GEOG306 | Introduction to Quantitative Methods for the Geographical Environmental Sciences | 3 |
| GEOG373 | Geographic Information Systems | 3 |
| **Track II Requirement:** | | |
| 9 credits from the following list (six must be at the 400-level): | | 9 |
| GEOG330 | As the World Turns: Society and Sustainability in a Time of Great Change | |
| GEOG331 | Introduction to Human Dimensions of Global Change | |
| GEOG332 | Economic Geography | |
| GEOG333 | The Social Geography of Metropolitan Areas in Global Perspective | |
| GEOG335 | | |
| GEOG415 | Land Use, Climate Change, and Sustainability | |
| GEOG416 | Conceptualizing and Modeling Human-Environmental Interactions | |
| GEOG421 | Changing Geographies of China | |
| GEOG422 | Changing Geographies of Sub-Saharan Africa | |
| GEOG432 | Spatial Econometrics | |
| GEOG470 | Algorithms for Geospatial Computing | |
| GEOG473 | Geographic Information Systems and Spatial Analysis | |
| GEOG475 | Geographic Visualization and Digital Mapping | |
| GEOG477 | | |
| **Total Credits** | | **18** |

# Government and Politics Track

| Course | Title | Credits |
|---|---|---|
| **Benchmark II Track Courses:** | | |
| GVPT170 | American Government | 3 |
| **Track I Requirement:** | | |
| GVPT200 | International Political Relations | 3 |
| GVPT201 | Scope and Methods for Political Science Research | 3 |
| GVPT320 | Advanced Empirical Research | 3 |
| **Track II Requirement:** | | |

| | |
|---|---|
| Any six credits of GVPT coursework at the 300- or 400- levels | 6 |
| **Total Credits** | **18** |

# Psychology Track

| Course | Title | Credits |
|---|---|---|
| **Benchmark II Track Courses:** | | |
| PSYC100 | Introduction to Psychology | 3 |
| **Track I Requirement:** | | |
| PSYC200 | Statistical Methods in Psychology | 3 |
| PSYC300 | Research Methods in Psychology Laboratory | 4 |
| **Track II Requirement:** | | |
| Nine credits from the following list: | | 9 |
| PSYC330 | Child Psychopathology | |
| PSYC332 | Psychology of Human Sexuality | |
| PSYC334 | Psychology of Interpersonal Relationships | |
| PSYC336 | Psychology of Women | |
| PSYC341 | Introduction to Memory and Cognition | |
| PSYC344 | Health Psychology | |
| PSYC353 | Adult Psychopathology | |
| PSYC354 | Multicultural Psychology in the U.S. | |
| PSYC355 | Developmental Psychology | |
| PSYC356 | | |
| PSYC361 | Survey of Industrial and Organizational Psychology | |
| PSYC362 | Introduction to Negotiation | |
| PSYC416 | Development of Attachment in Infancy and Childhood: Theory, Research, Methods, and Clinical Implications | |
| PSYC417 | Data Science for Psychology and Neuroscience Majors | |
| PSYC420 | Experimental Psychology: Social Psychology Laboratory | |
| PSYC424 | Communication and Persuasion | |
| PSYC425 | Psychology and Law | |
| PSYC432 | Counseling Psychology: Theories, Research, and Practice | |
| PSYC435 | Temperament, Personality, and Psychopathology | |
| PSYC436 | Introduction to Clinical Psychology: From Science to Practice | |
| PSYC437 | The Assessment and Treatment of Addictive Behaviors | |
| PSYC440 | Experimental Psychology: Cognitive Processes and Legal Applications | |
| PSYC450 | Applying Psychology to the Workplace: Industrial Organizational Psychology Laboratory | |
| PSYC456 | | |
| PSYC460 | Psychological Foundations of Personnel Selection and Training | |
| **Total Credits** | | **19** |

# Public Health Track

| Course | Title | Credits |
|---|---|---|
| **Benchmark II Track Courses:** | | |
| SPHL100 | Foundations of Public Health | 3 |
| **Track I Requirement:** | | |
| EPIB301 | Epidemiology for Public Health Practice | 3 |
| EPIB315 | Biostatistics for Public Health Practice | 3 |
| HLTH200 | Introduction to Research in Community Health | 3 |
| **Track II Requirement:** | | |
| Nine credits from the following list: | | 9 |
| EPIB330 | Introduction to Infectious Disease Epidemiology | |
| EPIB400 | Obesity: An Epidemiologic Perspective | |
| EPIB463 | Introduction to Biostatistical Programming | |
| FMSC310 | Maternal, Child and Family Health | |
| FMSC332 | Children in Families | |
| FMSC460 | Violence in Families | |
| HLSA300 | Introduction to Health Policy and Services | |
| HLSA465 | Redesigning Mental Health Services | |
| HLSA484 | Redesigning Health Care: Developing a Clinic to Meet Community Needs | |
| HLTH377 | Human Sexuality | |
| HLTH424 | Lesbian, Gay, Bisexual & Transgender Health | |
| HLTH434 | Introduction to Public Health Informatics | |
| KNES400 | The Foundations of Public Health in Kinesiology | |
| KNES401 | Zip Code: Prediction of Physical Activity & Health | |
| MIEH240 | Global Health Projects: Addressing Health Needs with a focus on Reciprocity and Relationships | |
| MIEH400 | Introduction to Global Health | |
| PHSC401 | History of Public Health | |
| PHSC412 | Food, Policy, and Public Health | |
| **Total Credits** | | **21** |

# Sociology Track

| Course | Title | Credits |
|---|---|---|
| **Benchmark II Track Courses:** | | |
| SOCY100 | Introduction to Sociology | 3 |
| **Track I Requirement:** | | |
| SOCY201 | Introductory Statistics for Sociology | 4 |
| SOCY202 | Introduction to Research Methods in Sociology | 4 |
| **Track II Requirement:** | | |
| Nine credits from the following list: | | 9 |
| SOCY325 | The Sociology of Gender | |
| SOCY335 | Sociology of Health and Illness | |
| SOCY401 | Intermediate Statistics for Sociologists | |
| SOCY405 | Scarcity and Modern Society | |
| SOCY406 | | |
| SOCY407 | Explaining Social Change: Historical and Comparative Methods | |
| SOCY410 | Social Demography | |
| SOCY411 | Demographic Techniques | |
| SOCY412 | Family Demography | |
| SOCY413 | Sociology of Aging | |
| SOCY415 | Environmental Sociology | |
| SOCY420 | Qualitative Research Methods in Sociology | |
| SOCY430 | | |
| SOCY431 | Principles of Organizations | |

| | | |
|---|---|---|
| SOCY432 | Social Movements | |
| SOCY441 | Social Stratification and Inequality | |
| SOCY442 | The Black Middle Class | |
| SOCY444 | | |
| SOCY445 | Sex and Love in Modern Society | |
| SOCY457 | Sociology of Law | |
| SOCY464 | | |
| SOCY465 | The Sociology of War: State and Society since the American Revolution | |
| SOCY467 | Sociology of Education | |
| SOCY480 | Researching the Middle East | |
| SOCY490 | Experimental Research Practicum | |
| SOCY491 | Experimental Research Design | |
| **Total Credits** | | **20** |

# GRADUATION PLANS

Click here (https://fellercenter.umd.edu/academic-advising/forms-policies/graduation-plans/) for roadmaps for graduation plans in the College of Behavioral and Social Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Sociology

**College of Behavioral and Social Sciences**
2108 Parren J. Mitchell Art/Sociology Building
Phone: 301-405-6389
http://socy.umd.edu

From job interviews to first dates to diplomatic meetings, social interactions shape people's lives. At the Department of Sociology at the University of Maryland, we study the micro and macro, from family organization to globalization, to better understand how society functions. We conduct one-on-one interviews and analyze massive data sets locally and around the world. We bring greater clarity to sociological processes as well as recommendations for policymakers to improve human welfare. Our proximity to Washington, D.C. gives our students rich opportunities to research and intern at government agencies and institutions including the World Bank. The National Science Foundation, the Department of Defense and the National Institutes of Health, among others, fund our research to help veterans returning from war, families struggling in the recession and hurricane victims rebuilding their lives.

# PROGRAMS

## Major

- Sociology Major (p. 288)

## Minors

- Demography Minor (p. 288)
- Sociology Minor (p. 289)

# ADVISING

Regular advising is strongly recommended for all majors. Advising is particularly important for those majors who are considering graduate school. Majors are reminded of the importance of taking the required foundation courses (SOCY100, SOCY201, SOCY202, SOCY203, SOCY230 & SOCY200/SOCY241/SOCY441) as soon as possible because these are prerequisite courses for the four 400-level Substantive courses. Degree audits are required of all majors at 60 and 90 credits. Further information on course work, internships, the department honors program, careers, and other topics may be obtained from the Sociology Undergraduate Advisor, 2108 Parren J. Mitchell Art/Sociology Building, 301-405-6389.

# OPPORTUNITIES

## Internships

Although internships are not a requirement for the major, students may wish to consider the internship program offered by the department or through the Experiential Learning unit of the University Career Center @ BSOS (https://fellercenter.umd.edu/career-planning/). Majors may receive up to six credits in SOCY386 when an internship/volunteer position is combined with an academic project. A prerequisite of 12 credit hours in sociology coursework is required.

## Honors Program

The Sociology Honors Program seeks to encourage and recognize superior scholarship by providing an opportunity for interested, capable, and energetic undergraduate students to engage in study in an area of the student's interest under the close supervision of a faculty mentor. The honors program is based upon tutorial study and independent research.

Students who have an overall cumulative grade point average of at least 3.3, a cumulative average of 3.5 in sociology courses, and who have taken at least nine credits in sociology may apply. Transfer students with equivalent academic records at other accredited institutions are also eligible. Admission to the program will be based upon academic performance and the judgment of the Undergraduate Committee whether the applicant has sufficient maturity and interest to complete successfully the requirements for graduation with Honors. Further information on the honors program is available from the Sociology Undergraduate Office.

## Student Societies and Professional Organizations

The Sociology Collective, open to all Sociology majors, is organized by a group of interested undergraduates to fill student needs within the sociology community. The collective provides information about topics of interest, including department activities, career planning, and relevant changes within the university, and strives to enhance the sense of community within the department. Representatives of the collective participate in many faculty committees within the department and thereby provide the undergraduate perspective on policy issues.

The Alpha Kappa Delta is the National Honor Society for Sociology majors. Membership is based on sociology GPA (3.3 minimum) and overall GPA (3.3 minimum). Students may apply after they have completed 18 hours of sociology coursework. Application for membership may be made in the Sociology Undergraduate Office and are accepted in both fall and spring semesters.

## Scholarships and Financial Assistance

**The Tara Lynn Resnick Scholarship** is awarded annually to an outstanding female Sociology undergraduate student. This scholarship carries an award of $500 that may be used toward educational expenses for the following fall semester. Applications are accepted during the spring semester. Female students who have earned 60 credits and have a minimum GPA of 3.0 are eligible to apply.

**The Parker-Fuller Scholarship** is awarded annually to a full-time undergraduate Sociology major in their senior year of study on the basis of need. It provides an annual award of $1,000. Applications for this scholarship are accepted during the spring semester.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# Demography Minor

**Program Director:** Michael Rendall, Ph.D.

Coursework will explore the ways in which changes in human behavior and access to resources (including health, education and economic well-being), are shaped by social and demographic forces. By examining demographic behaviors within broader historical and cultural contexts, students will gain both micro and macro perspectives on social change. Students will also be trained in a range of demographic techniques used to study these processes.

## REQUIREMENTS

The minor in Demography requires that students complete 18 credits of coursework, including three required courses and three electives to be selected from the list below. The three required courses lay the foundation of demographic knowledge and tools that will then be applied in the substantive elective courses where students will focus on issues relevant to their specific interests.

| Course | Title | Credits |
|---|---|---|
| **Required Courses** [1] | | |
| SOCY201 | Introductory Statistics for Sociology (or an equivalent course from another department) | 4 |
| SOCY410 | Social Demography | 3 |
| SOCY411 | Demographic Techniques | 3 |
| **Electives** [2] | | **9** |
| 3 courses selected from the courses below. Up to two electives may be taken from outside of the Sociology Department. | | |
| SOCY Courses | | |
| SOCY335 | Sociology of Health and Illness | |
| SOCY386 | Experiential Learning | |
| SOCY412 | Family Demography | |
| SOCY413 | Sociology of Aging | |
| SOCY418 | Research in Family & Demography | |
| SOCY428 | Research in Inequality | |
| SOCY441 | Social Stratification and Inequality | |
| SOCY445 | Sex and Love in Modern Society | |
| Non-SOCY courses (maximum of 2) | | |
| AAST222 | Immigration and Ethnicity in the US | |
| AAST498 | Advanced Topics in Asian American Studies (AAST498B-Urban Demography and Community) | |
| ANTH265 | Anthropology of Global Health | |
| AREC365 | World Hunger, Population, and Food Supplies | |
| ECON315 | Economic Development of Underdeveloped Areas | |
| EPIB301 | Epidemiology for Public Health Practice | |
| FMSC381 | Family Inequality | |
| GEOG335 | | |
| NFSC425 | International Nutrition | |
| **Total Credits** | | **19** |

1 Required courses are offered every semester.

2 The list of electives may be updated over time to reflect changing course offerings. Most elective Sociology courses are offered at least once a year. Up to two electives may be taken from outside of the Sociology Department.

# Sociology Major

**Program Director:** Nicole DeLoatch, Ph.D.

Sociology is the scientific study of society and its institutions, organizations, and groups. By observing the broad range of activities in society, and exploring topics such as social class, race, gender, deviance, family, religion, the workplace, and demographic trends, sociologists provide important information and perspectives on our social order and the causes and impacts of social change. Sociology provides important information useful both to personal life and public policy decisions. Sociology is among the broadest of the social sciences and is characterized by considerable pluralism in theoretical and methodological approaches, substantive specializations, and in units of analysis.

Students major in Sociology for a variety of reasons. Some emphasize sociology's relevance to understanding a broad range of social issues that interest them out of intellectual curiosity, personal life relevance, or usefulness for ameliorative social change efforts. Other majors emphasize acquisition of sociological knowledge and skills useful in a variety of career paths where understanding societal problems and trends, group dynamics, and personnel issues are critical. For a small core of majors the purpose of the undergraduate program is preparation and training for admissions to graduate programs and eventual careers as sociologists in teaching and research and/or policy development. Majors may also use sociology as a basis for graduate study in related fields, including law, social work, public policy, and human resource management.

Courses offered by this department may be found under the acronym: SOCY.

## Program Objectives

The overall goals of the program are:

- To provide meaningful and challenging courses within the university general education program
- To provide meaningful and challenging courses as electives for non-majors
- To provide a coherent program of courses for Sociology majors which enables majors to attain:

a. general sociological knowledge and understanding of our society
b. sociological knowledge and skills relevant to a variety of career paths
c. sociological knowledge and skills relevant to application and success within competitive sociology graduate programs
d. to provide a Sociology Honors component for selected students who have the capability and motivation to work at the most challenging level

## Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

1. Demonstrate a comprehensive grasp of the sociological perspective, encompassing its broad definition and core principles, to analyze society's structure and dynamics.
2. Apply sociological theories effectively to explain and analyze complex social problems, to foster a deeper understanding of the underlying causes and consequences of social inequality.
3. Identify and formulate recommendations, using both theoretical and/or empirical considerations, to address contemporary social problems.
4. Demonstrate the ability to interpret, locate, evaluate, generate and use sociologically relevant data to test hypotheses and draw evidence-based conclusions.
5. Integrate sociological theory, research, and data in order to assess various explanations of social phenomena and to assess social policy.
6. Demonstrate the ability to work in diverse groups to explain systemic, cultural, and behavioral practices that increase or decrease diversity, equity and inclusion in society. Demonstrate the ability to analyze social integration and assess social policies that mitigate exclusionary practices.

# REQUIREMENTS

As part of the 120 credits and other requirements for a Bachelor of Arts degree, sociology majors must complete a minimum of 32 credits in Sociology and 3 credits in MATH107/MATH111/MATH120/MATH140, or STAT100 All these credits must be completed with a minimum grade of "C-" or better in each course, and students must earn at least a 2.00 cumulative GPA for all courses in the major. The 35 credits in Sociology must include the following:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 246) | | |
| **Foundation Course Requirement** | | |
| MATH107 | Introduction to Math Modeling and Probability | 3 |
| SOCY100 | Introduction to Sociology | 3 |
| SOCY201 | Introductory Statistics for Sociology | 4 |
| SOCY202 | Introduction to Research Methods in Sociology | 4 |
| SOCY203 | Sociological Theory | 3 |
| SOCY230 | Sociological Social Psychology | 3 |
| SOCY200 | Innovation, Exploration and the Evolution of Human Societies | 3 |
| or SOCY241 | Inequality in American Society | |
| or SOCY441 | Social Stratification and Inequality | |
| **Substantive Course Requirement:** [1] | | |
| Select one 300 or 400 level SOCY course | | 3 |
| Select one 400 level SOCY course | | 3 |
| Select two 400 level SOCY Research Courses [2] | | 6 |
| **Total Credits** | | **35** |

[1] Before taking Substantive Course requirements, students must have completed 6 credits of SOCY courses.
[2] A list of methods or research courses selected from a list maintained by the Sociology Undergraduate Advising Office. Students must take SOCY201 and SOCY202 before taking the required 400 level research courses.

Students should note the following in reference to Sociology requirements:

1. SOCY201 has a prerequisite of MATH107 or higher with a minimum grade of "C-";
2. Some of the courses necessary to fulfill substantive requirements, and/or the methods/research course requirement may have prerequisites such as SOCY201, SOCY202, and SOCY203;
3. Special topics courses may be repeatable for credit if its content differs from when previously taken;
4. SOCY498 courses may be used to fulfill substantive course requirements; the Sociology Undergraduate Office maintains current lists of special topics courses (SOCY498); and
5. Each course counted as meeting sociology requirements must be passed with a grade of "C-" or better.

### Other Requirements for the Major

Students must earn a minimum grade of "C-" in MATH107 and all major requirements. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy major requirements.

# GRADUATION PLANS

Click here (https://fellercenter.umd.edu/academic-advising/forms-policies/graduation-plans/) for roadmaps for graduation plans in the College of Behavioral and Social Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Sociology Minor

**Program Director:** Nicole DeLoatch, Ph.D.

The Sociology Minor introduces students to the ways in which social institutions, such as the family, religion, education, mass media, the workplace, and the justice system inform individual and social trajectories. Students will analyze global social processes including culture, identity formation, war and peace, deviance and social control, aging, and social movements; and the investigation of inequalities, for example in the areas of race, class, and gender. Students who minor in sociology are advised to systematically choose their sociology electives (e.g., Social Psychology, Medical Sociology, Social Policy, Problems and Justice). Undergraduates may consult with the department's undergraduate advisor and the undergraduate director in deciding which

electives to take. In completing minor requirements, only two courses (six semester credit hours) will be accepted in transfer from other colleges and universities, and only two courses can overlap with major requirements.

## Program Learning Outcomes

1. Critical Thinking: The ability to demonstrate critical thinking through the ability to analyze and evaluate social, political, and/or cultural arguments, including the background assumptions, appropriateness of methods used and the strength of explanatory evidence.
2. Sociological Understanding: The ability to demonstrate sociological understandings of phenomena, for example, how individual biographies are shaped by social structures, social institutions, cultural practices, and multiple axes of difference and/or inequality. Students will be able to apply their "sociological imagination" to analyzing current events, political, economic and cultural media.
3. Written and Oral Communication: The ability to formulate effective and convincing written and/or oral arguments as well as in appropriate graphic forms where appropriate.
4. Methodology: The ability to demonstrate an understanding of several of the major social science research methodologies including research design, data gathering and analysis.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| SOCY100 | Introduction to Sociology | 3 |
| One of the following courses: | | 3-4 |
| SOCY200 | Innovation, Exploration and the Evolution of Human Societies | |
| SOCY230 | Sociological Social Psychology | |
| One of the following courses: | | 3 |
| SOCY241 | Inequality in American Society | |
| SOCY441 | Social Stratification and Inequality | |
| 300-400 Level Sociology Elective Courses | | 9 |
| **Total Credits** | | **18-19** |

# Survey Methodology Minor

**Joint Program in Survey Methodology**
1218 LeFrak Hall
Phone: 301-314-7911
jpsm-contact@umd.edu
http://jpsm.umd.edu

**Minor Program Director:** Jody Williams, Executive Director, JPSM

The undergraduate minor in Survey Methodology is a cross-disciplinary program offered by the Joint Program in Survey Methodology (JPSM) within the College of Behavioral and Social Sciences (BSOS). Students in the program will explore the theoretical foundations of survey design and survey data collection, together with the practical application of this theoretical material. Completion of the minor will prepare students to enter careers in the federal statistical system or any of the numerous private sector firms that collect survey data to inform decision-making, as well as for further graduate study in the field of survey methodology. In addition, students aspiring to careers in fields such as marketing, political consulting, economics or the social sciences that rest on the collection and use of survey data will benefit from the understanding of the data collection process that they will acquire.

## Eligibility and Application Process

Admission to the minor will be limited to no more than 25 students per year, selected through a competitive application process. This limitation on potential enrollments is necessary because of the small size of the JPSM faculty. Successful applicants will have completed at least 30 semester credits and have demonstrated a high level of academic achievement with a minimum GPA requirement of a 3.2. Students who apply to the program are expected to be able to work independently. Students seeking admission to the minor will be asked to complete an application form made available on the JPSM website, submit a letter of support for their application from a faculty member or advisor, submit a half page statement why this minor interests you and provide a copy of their transcript.

The faculty committee responsible for oversight of the minor will evaluate the applications submitted. In selecting students to the program the committee will emphasize academic achievement including, in particular, evidence of successful completion of courses in quantitative subjects.

## Program Learning Outcomes

Whether collecting information from survey respondents or making use of data collected by means of such surveys, individuals in many fields require an understanding of the process of designing surveys and collecting survey data. Requisite knowledge areas include the principles of questionnaire design, selecting survey samples to represent populations of interest, modes of data collection, and the use of weights in the analysis of survey data, among other topics.

Upon completion of the proposed curriculum, students will:

1. Have the knowledge needed to construct a new survey questionnaire or evaluate an existing survey questionnaire in accord with the basic principles of questionnaire design;
2. Know how to identify potential sources of error in survey estimates and suggest strategies for minimizing those errors; and
3. Be aware of various features of the design of sample surveys that may affect the analysis and interpretation of the resulting data.

## REQUIREMENTS

**16-19 credits are required for the minor as outlined below:**

| Course | Title | Credits |
|---|---|---|
| **Statistics and Research Methods (6-8 credits)** [1] | | |
| Select one of the following: | | 3-4 |
| BIOM301 | Introduction to Biometrics | |
| CCJS200 | Statistics for Criminology and Criminal Justice | |
| ECON230 | Applied Economic Statistics | |
| ECON321 | Economic Statistics | |
| EDMS451 | Introduction to Educational Statistics | |
| GVPT422 | Quantitative Political Analysis | |
| PSYC200 | Statistical Methods in Psychology | |
| SOCY201 | Introductory Statistics for Sociology | |
| STAT400 | Applied Probability and Statistics I | |
| STAT410 | Introduction to Probability Theory | |
| Select one of the following: | | 3-4 |

| | | |
|---|---|---|
| AREC422 | Econometric Analysis in Agricultural and Environmental Economics | |
| ECON422 | Econometrics | |
| ECON424 | Applied Econometrics | |
| SOCY401 | Intermediate Statistics for Sociologists | |
| STAT401 | Applied Probability and Statistics II | |
| PSYC300 | Research Methods in Psychology Laboratory | |
| STAT420 | Theory and Methods of Statistics | |
| **Core Course in Survey Methodology (6 credits)** | | |
| SURV400 | Fundamentals of Survey and Data Science [2] | 3 |
| SURV630 | Questionnaire Design and Evaluation | 3 |
| **Additional Survey Methodology Courses (4-5 credits) [3]** | | |
| Select one of the following: | | 3 |
| SURV621 | Fundamentals of Data Collection I | |
| SURV632 | Cognition, Communication and Survey Measurement (Fall) | |
| SURV625 | Applied Sampling (Spring, Summer) | |
| Any 600 Level 1 or 2 credit Introductory SURV course | | 1-2 |
| **Total Credits** | | **16-19** |

1 Please refer to the "Statistics and Research Methods Courses" section below for additional information.

2 Additional information about this course can be found in the "Core Course in Survey Methodology" section below.

3 Please refer to the "Additional Survey Methodology Courses" section below for additional information.

# Statistics and Research Methods Courses (6-8 credits)

The design of survey samples and the analysis of survey data are inherently quantitative exercises. It is, therefore, important that anyone seeking to work in these fields of endeavor have a solid quantitative background. Students enrolled in the minor will be required to take two courses in statistics and research methods.

There is enormous demand on campus for many of the courses listed as options for fulfilling the statistics/research methods requirement, especially the courses on the first list, and the number of seats available in these classes may be limited. Majors in the department that offers a course may receive priority for enrollment (e.g., CCJS200) or enrollment in a course may be restricted to majors (e.g., ECON321). In addition, there may be prerequisites associated with a particular course. Several of the courses listed in the first set of options require that the student have taken calculus and some of the courses listed in the second set of options require a particular first course as a prerequisite (e.g., STAT420 requires STAT410 as a prerequisite). The fact that a course is listed as an appropriate option for fulfilling the minor requirements does not imply that students necessarily will be able to enroll in that specific course. Students interested in the minor will be asked to consult with their JPSM Advisor about the best way to complete the two course statistics and research methods requirement given their individual circumstances. Courses covering similar material, including courses offered at other institutions, may be accepted as substitutes for the listed courses.

SOCY201 and SOCY401 are 4-credit rather than 3-credit courses. For students choosing these courses to fulfill the requirements of the minor, the minor will be an 18 to 19 credit program. Students admitted to the minor in the spring of their sophomore year who have not yet taken one of the listed statistics/research methods courses ideally will take one in the fall of their junior year and the second in the spring of their junior year.

# Core Courses in Survey Methodology (6 credits)

The core course of the minor is SURV400 Fundamentals of Survey Design. This is an existing course that is offered each spring and is taught by a regular member of the JPSM teaching faculty. Students in the minor will be given enrollment priority. SURV400 is designed to provide students with an overview of the entire survey process, from the development of survey objectives to the collection and analysis of the survey data. The textbook for the course was authored by leading scholars in the field, all of whom have taught in the JPSM program. SURV400 will be a prerequisite for the two additional 3 credit SURV courses required for the minor and should be taken in the spring of the junior year. Students completing the minor also will be required to take SURV630 Questionnaire Design, an existing course taken by students pursuing the JPSM Masters in Survey Methodology, in the spring. Successful completion of SURV630 will satisfy the minor requirement. Taking SURV630 could be advantageous for students who later apply for the JPSM Masters degree program, as it is a required course for that program.

# Additional Survey Methodology Courses (4-5 credits)

Students taking the minor also will be required to take an additional three-credit 600-level SURV course from the list below. The course options and the semesters when these courses are regularly offered are as follows:

| Course | Title | Credits |
|---|---|---|
| SURV621 | Fundamentals of Data Collection I | 3 |
| SURV632 | Cognition, Communication and Survey Measurement (Fall) | 3 |
| SURV625 | Applied Sampling (Spring, Summer) | 3 |

These are existing courses taken primarily by students in the JPSM Masters program. Although these are graduate level courses, we believe they should be accessible to advanced undergraduates with suitable preparation.

Students taking the minor also will be required to take one additional 1-2 credit introductory 600-level SURV course of their choosing. This includes onsite or online SURV courses.

# Completion Requirements

In order to complete the minor, students must:

- Complete all 16-18 required credits;
- Achieve a minimum grade of "C-" or better in all minor courses;
- Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements;
- Apply no more than two courses from the minor to satisfying the requirements of the student's major;
- Complete no more than two courses for the minor at an institution other than the University of Maryland, College Park.

The minor is designed to be completed during the junior and senior years, but students could apply for admission to the minor as early as the fall of

their sophomore year. Courses completed prior to applying for the minor will be accepted to satisfy the minor requirements.

## ADVISING

Interested students should contact JPSM at jpsm-contact@umd.edu. The application form will be posted to the JPSM website at http://jpsm.umd.edu/academics/undergraduate-minor-program/#tab-2/ and applications for admission will be reviewed each semester. Once admitted to the program, students will work with the program director or an assigned faculty advisor to plan the courses to be taken to complete the minor. Students will be expected to be in touch with their faculty advisor(s) prior to the start of each semester to ensure that they are continuing on track to complete the minor requirements.

# The Robert H. Smith School of Business

1570 Van Munching Hall
Phone: 301-405-2286
smithundergradinfo@umd.edu
http://rhsmith.umd.edu

**Dean:** Prabhudev Konana, Ph.D.
**Associate Dean:** Joseph Bailey, Ph.D.
**Senior Assistant Dean:** Brian Horick

The Robert H. Smith School of Business is an internationally recognized leader in management education and research, and its mission is to create knowledge, promote a learning environment that fosters intellectual discovery, and equip current and future leaders to assess complex problems and deliver innovative solutions.

The Smith School is accredited by AACSB International - The Association to Advance Collegiate Schools of Business, the premier accrediting agency for bachelor's, master's and doctoral degree programs in business administration and accounting, http://aacsb.edu.

A student in the Smith School of Business, selects a major(s) in one of the following curricula:

1. Accounting;
2. Finance;
3. Information Systems;
4. International Business;
5. Management;
6. Marketing;
7. Operations Management & Business Analytics; or
8. Supply Chain Management.

Upper-division BMGT programs are offered at College Park and at the Universities at Shady Grove (http://shadygrove.umd.edu) in Montgomery County. For details on the majors offered at Shady Grove visit http://rhsmith.umd.edu/programs/undergraduate/shady-grove/.

# Admission Requirements

See "Admission Requirements and Application Procedures" section (p. 22) for general LEP admissions policies.

## Freshman Admission

Direct admission to the Smith School is offered on space-available basis to first-time applicants who present the most competitive academic records. All students admitted directly to BMGT as freshmen must demonstrate satisfactory progress.

- All students admitted as freshmen must demonstrate satisfactory progress (2.0 GPA or better) plus completion of gateway courses (BMGT220, BMGT230, and MATH120, MATH130, MATH136 or MATH140 - each with a minimum grade of "C-" or better) by the semester they reach 45 credits (excluding AP and ESL), at which time they will be reviewed in order to continue in the Smith School major. (Note: Only one repeat of one single course to the set of gateway courses will be accepted to remain in BMGT. Appeals will be considered.)

## Transfer Admission for Students from On or Off Campus

All students applying for admission to BMGT as transfer students, whether internal transfers already enrolled at UMCP or external transfer students entering the university for the first time, will be subject to competitive admission for a limited number of spaces in the Smith School of Business program at each program location. Internal and external transfer students may apply to compete for admission to the Smith School of Business in the semester they have earned 45 credits. Below are the current admission standards.

- A minimum grade point average of 3.0 in all college coursework is required for consideration for all internal and external transfer applicants. As of Fall 2023, admitted University of Maryland students applying to Business, who have completed all of the LEP gateway requirements, and have a 3.0 - 3.599 cumulative grade point average across all attempted college coursework will undergo a competitive review for admission to the Business major. Admitted University of Maryland students applying to Business, who have completed all of the LEP gateway requirements, and have a 3.6 or higher cumulative grade point average across all attempted college coursework will be directly admitted into the Business major.
- Completion of the following gateway courses, all with "C-" or better:

| Course | Title | Credits |
|---|---|---|
| **Accounting** | | |
| BMGT220 | Principles of Accounting I | 3 |
| **Calculus** | | |
| Select one of the following: | | 3-4 |
| MATH120 | Elementary Calculus I | |
| MATH136 | Calculus for Life Sciences | |
| MATH140 | Calculus I | |
| **Business Statistics** | | |
| BMGT230 or BMGT231 | Business Statistics [1] | 3 |

[1] The following courses are approved substitutes for BMGT230: BIOM301, CCJS200, ECON230, ECON321, EDMS451, EPIB300, EPIB315, GEOG306, HLTH300, INST314, PSYC200, or SOCY201. The following courses are approved substitutes for BMGT231: BIOE372, ENCE302, ENEE324, ENME392, STAT400, or STAT420.

- Co-curricular involvement, leadership experience and honors and awards will also be considered in the admission decision. Students are strongly encouraged to submit with their applications a resume and letter detailing their accomplishments and experience.

**Application Deadlines for Transfer Students:** Complete applications and all supporting documents must be received no later than:

| Semester | Date |
|---|---|
| Fall | March 15th |
| Spring | October 15th |

Applicants who have earned 45 credits and completed all required gateway courses at the time of their application will be notified of their admission decision in early April for fall admission and early December for spring admission. Students who are in the process of completing the required gateways or accumulating 45 credits at the time of their

application will be notified of their admission decision after the semester has ended and final grades for the semester have been calculated.

For additional details visit http://lep.umd.edu and http://rhsmith.umd.edu/programs/undergraduate/admissions/.

*For questions, call 301-314-8385 or email* lep@umd.edu.

Any student denied admission or dismissed from the major may appeal to the Associate Dean of the College.

### Statement of Policy on Transfer of Credit from Community Colleges

It is the practice of the Smith School of Business to consider for transfer from a regionally accredited community college only the following courses in business administration: an introductory business course, business statistics, or elementary accounting. Thus, it is anticipated that students transferring from another regionally accredited institution will have devoted the major share of their academic effort below the junior year to the completion of basic requirements in the liberal arts. A total of 60 semester hours from a community college may be applied toward a degree from the Smith School of Business.

### Other Institutions

The Smith School of Business normally accepts transfer credits from regionally accredited four-year institutions. Junior- and senior-level business courses are accepted from colleges accredited by the Association to Advance Collegiate Schools of Business (AACSB). Junior- and senior- level business courses from other than AACSB-accredited schools are evaluated on a course-by-course basis to determine transferability.

The Smith School of Business requires that at least 50 percent of the business and management credit hours required for a business degree be earned at the University of Maryland, College Park.

# DEPARTMENTS

## Departments and Units

- Accounting (p. 296)
- Decision, Operations and Information Technologies (p. 298)
- Finance (p. 301)
- Logistics, Business, and Public Policy (p. 303)
- Management (p. 304)
- Marketing (p. 306)

# ACADEMIC PROGRAMS

## Majors

- Accounting Major (p. 296)
- Finance Major (p. 301)
- Information Systems Major, Business Specialization (p. 299)
- International Business Major (p. 303)
- Management Major (p. 305)
- Marketing Major (p. 306)
- Operations Management & Business Analytics Major (p. 300)
- Supply Chain Management Major (p. 303)

## Minors

- Business Analytics Minor (p. 297)
- Computational Finance Minor (BMGT) (p. 298)
- General Business Minor (p. 302)
- Innovation & Entrepreneurship Minor (p. 302)

# COLLEGE REQUIREMENTS

## Undergraduate Degree Requirements/ Degree Options

The University of Maryland confers the following degrees: Bachelor of Science (B.S.), Master of Business Administration (M.B.A.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). Information concerning admission to the M.B.A. or M.S. program is available at http://rhsmith.umd.edu.

### Undergraduate Program

The undergraduate program recognizes the need for professional education in business and management based on a foundation in the liberal arts. In addition, the program's internationally integrated curriculum prepares students to be effective and responsible managers in today's dynamic business environment.

A student in business and management selects a major in one of several curricula:

1. Accounting;
2. Information Systems: Specialization Business;
3. Finance;
4. General Business;
5. International Business;
6. Operations Management & Business Analytics;
7. Marketing;
8. Supply Chain Management.

### Summary of Bachelor of Science Degree Requirements (All Curricula)

At least 45 hours of the 120 semester hours of academic work required for graduation must be in business and management subjects. 50% of the required BMGT credit hours must be completed at the University of Maryland, College Park. A minimum of 58 hours of the required 120 hours must be in 300- or 400-level courses. In addition to the requirement of an overall cumulative grade point average of 2.0 ("C" average) in all university course work, all business majors must earn a "C-" or better in all required courses, including Economics, Mathematics, and Communication. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum "C" (2.00) cumulative grade point average across all courses used to satisfy major degree requirements. Electives outside the curricula of the school may be taken in any department of the university, if the student has the necessary prerequisites.

| Course | Title | Credits |
|---|---|---|
| **Freshman-Sophomore School Requirements** | | |
| BMGT110 | Introduction to the Business Value Chain | 3 |
| BMGT220 | Principles of Accounting I | 3 |
| BMGT221 | Principles of Accounting II | 3 |

| | | |
|---|---|---|
| ECON200 | Principles of Microeconomics | 3 |
| ECON201 | Principles of Macroeconomics | 3 |
| MATH120 | Elementary Calculus I [1] | 3 |
| or MATH140 | Calculus I | |
| BMGT230 | Business Statistics | 3 |
| or BMGT231 | | |
| Select one of the following: [2] | | 3 |
| COMM100 | | |
| COMM107 | Oral Communication: Principles and Practices | |
| COMM200 | Critical Thinking and Speaking | |
| **Junior-Senior School Requirements** | | |
| BMGT301 | Introduction to Information Systems | 3 |
| BMGT340 | Business Finance | 3 |
| BMGT350 | Marketing Principles and Organization | 3 |
| BMGT364 | Managing People and Organizations | 3 |
| BMGT367 | Career Search Strategies in Business | 1 |
| BMGT380 | Business Law I | 3 |
| BMGT495 | Strategic Management | 3 |
| **Economics Requirement** | | |
| 0-3 credits of approved upper-level economics courses are required by the Smith School of Business. The specific requirements for each major are listed with the majors' specific requirements. | | 0-3 |
| **Total Credits** | | **43-46** |

1 MATH130 or MATH136 Calculus for the Life Sciences is an acceptable substitute for MATH120/MATH220/MATH140 if the student completed MATH130 or MATH136 as a part of work toward a previous major, as well as those who were working toward that major while in Letters & Sciences.

2 Any course that fulfills the University's Oral Communication General Education requirement will also satisfy the Smith School's public speaking requirement.

## Major Requirements

In addition to the Smith School of Business Bachelor of Science requirements listed above, generally another 18-24 credits are required for each major. See individual major listings under each department's page or visit http://rhsmith.umd.edu/programs/undergraduate/academics/academic-majors/.

### A Typical Program for the Freshman and Sophomore Years

**Freshman Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| General Education and/or Electives | 6 | General Education and/or Electives | 6 |
| ENGL101 (or equivalent) | 3 | ECON200 | 3 |
| MATH (depending on placement)[1] | 3 | Select one of the following: | 3 |
| BMGT110 | 3 | COMM100 | |
| | | COMM107 | |
| | | COMM200 | |
| | | Select one of the following: | 3 |
| | | MATH | |
| | | BMGT230 & BMGT231[1] | |
| | **15** | | **15** |

**Sophomore Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| General Education and/or Electives | 10 | General Education and/or Electives | 10 |
| BMGT220 | 3 | BMGT221 | 3 |
| ECON201 | 3 | Select one of the following: | 3 |
| | | BMGT230 | |
| | | BMGT231 | |
| | | Elective | |
| | **16** | | **16** |

**Total Credits 62**

1 See Freshman-Sophomore School requirements for appropriate math and statistics courses.

# ADVISING

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, smithundergradinfo@umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217, or visit http://orientation.umd.edu.

# OPPORTUNITIES

## Specialized Academic Programs

The Smith School offers innovative special programs that create small communities of scholars within the larger Smith School community. For more information on the Smith School's special programs please visit these links: https://www.rhsmith.umd.edu/programs/undergraduate/academics/specialty-programs (https://www.rhsmith.umd.edu/programs/undergraduate/academics/specialty-programs/) and https://www.rhsmith.umd.edu/programs/undergraduate/academics/fellows-programs (https://www.rhsmith.umd.edu/programs/undergraduate/academics/fellows-programs/).

## College Honors Program

The Smith School of Business offers the following honors programs.

**Interdisciplinary Business Honors Living Learning Program**: Designed for exceptional students from all majors across the University of Maryland, the UMD Honors College and the Robert H. Smith School of Business will premier the Interdisciplinary Business Honors Program in fall 2022. This two-year program features an advanced and unique interdisciplinary approach. Students will combine access to cutting-edge professional and technical business skills with broader thinking about the role of business in the world, and in relation to multiple academic fields. They'll then apply this knowledge to thinking critically about the great challenges of our time, including social, environmental, public health, and human rights topics.  For more information on this program visit https://ibh.umd.edu/.

**QUEST (Quality Enhancement Systems and Teams) Honors Program**: QUEST (Quality Enhancement Systems and Teams) Honors Program is a three-year program for University of Maryland undergraduates studying business, engineering, and/or science. Through our five-course curriculum, students complete experiential learning projects and gain unique teamwork, communication, and problem-solving skills that prepare them for their futures. Beginning over 30 years ago, QUEST has become a mainstay at the University of Maryland, College Park, providing a unique opportunity for students who are interested in multidisciplinary, hands-on learning experiences. For more information about this program visit http://www.rhsmith.umd.edu/quest/.

## Approved Student Societies and Professional Organizations

Students may choose to associate themselves with one or more professional organizations offered under the umbrella organization, Smith Undergraduate Student Association (SUSA). For more details, visit http://rhsmith.umd.edu/programs/undergraduate/community/clubs-and-organizations/.

## Awards

### Scholarships

For details on available scholarships, please click on the scholarships tab at http://rhsmith.umd.edu/programs/undergraduate/admissions/financial-aid-and-scholarships/.

# Accounting

**The Robert H. Smith School of Business**
1570 Van Munching Hall
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smithundergradinfo@umd.edu
http://rhsmith.umd.edu/programs/undergraduate/

The Accounting major is also offered at The Universities at Shady Grove (https://shadygrove.umd.edu) in Montgomery County, Maryland. Go here (https://rhsmith.umd.edu/programs/undergraduate/shady-grove/) to see more information about the Robert H. Smith School of Business's undergraduate offerings at the Shady Grove campus.

# PROGRAMS

## Major

- Accounting Major (p. 296)

# ADVISING

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, smithundergradinfo@umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

# Accounting Major

**Associate Dean:** Joseph Bailey, Ph.D.

**Assistant Dean:** Brian Horick

Accounting, in a limited sense, is the analysis, classification, and recording of financial events and the reporting of the results of such events for an organization. In a broader sense, accounting consists of all financial systems for planning, controlling, and appraising performance of an organization. Accounting includes among its many facets: financial planning, budgeting, accounting systems, financial management controls, financial analysis of performance, financial reporting, internal and external auditing, and taxation. The accounting curriculum provides an educational foundation for careers in public accounting and management, whether in private business organizations, government or nonprofit agencies, or consulting. Two tracks are provided: The Public Accounting Track leading to the CPA (Certified Public Accounting) and the Business and Accounting Advisory Track for students who are pursuing careers in business and accounting that do not require the student to be CPA Exam eligible.

## Admission to the Major

See Admission Requirements (p. 293) on the Robert H. Smith School of Business page.

## Program Learning Outcomes

1. Apply elements of critical thinking.
2. Identify common situations in chosen career that could result in ethical dilemma.
3. Analyze ethical scenarios and apply frameworks to develop solutions.
4. Foster and sustain team environments that are inclusive of ideas from all contributing members.
5. Apply leadership skills to motivate and coordinate with others to achieve goals.
6. Write professional-grade business documents.
7. Develop and deliver effective oral presentations.
8. Identify and use appropriate quantitative tools and techniques.
9. Use software applications to analyze and solve problems.
10. Explain how functional areas interact and drive one another.
11. Prepare a multiple-step income statement from a trial balance and supporting documentation.
12. Understand the impact of audit objectives and risk of material misstatement in planning an audit.
13. Define audit engagement procedures and where each procedure is used appropriately.
14. Identify the factors that an auditor should consider in order to determine the correct format and contents of an audit opinion.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 294) | | |
| **All Accounting Majors** | | |
| BMGT310 | Intermediate Accounting I | 3 |
| BMGT321 | Managerial Accounting | 3 |
| BMGT326 | Accounting Systems | 3 |
| Select one of the following tracks: | | 9-15 |
| Public Accounting Track | | |

| | |
|---|---|
| Business and Accounting Advisory Track | |
| **Total Credits** | **18-24** |

# Tracks

## Public Accounting Track

| Course | Title | Credits |
|---|---|---|
| BMGT311 | Intermediate Accounting II [1] | 3 |
| BMGT323 | Taxation of Individuals [1] | 3 |
| BMGT411 | Ethics and Professionalism in Accounting [1] | 3 |
| BMGT422 | Auditing Theory and Practice [1] | 3 |
| Select one of the following: | | 3 |
| BMGT313 | Financial Statement Analysis | |
| BMGT410 | Government Accounting | |
| BMGT417 | Taxation of Corporations, Partnerships and Estates | |
| BMGT423 | Fraud Examination | |
| BMGT424 | Advanced Accounting | |
| BMGT428 | Special Topics in Accounting | |
| **Total Credits** | | **15** |

[1] Required for CPA in Maryland

## Business and Accounting Advisory Track

| Course | Title | Credits |
|---|---|---|
| Select two of the following: | | 6 |
| BMGT311 | Intermediate Accounting II | |
| BMGT313 | Financial Statement Analysis | |
| BMGT323 | Taxation of Individuals | |
| BMGT410 | Government Accounting | |
| BMGT411 | Ethics and Professionalism in Accounting | |
| BMGT417 | Taxation of Corporations, Partnerships and Estates | |
| BMGT422 | Auditing Theory and Practice | |
| BMGT423 | Fraud Examination | |
| BMGT424 | Advanced Accounting | |
| BMGT428 | Special Topics in Accounting | |
| Select one of the following: | | 3 |
| BMGT362 | Negotiations | |
| BMGT372 | Introduction to Logistics and Supply Chain Management | |
| BMGT385 | Operations Management | |
| BMGT392 | Introduction to International Business Management | |
| BMGT402 | Database Systems | |
| BMGT440 | Advanced Financial Management | |
| BMGT454 | Global Marketing | |
| BMGT461 | Entrepreneurship | |
| Or one of the following accounting courses not selected above: | | |
| BMGT311 | Intermediate Accounting II | |
| BMGT313 | Financial Statement Analysis | |
| BMGT323 | Taxation of Individuals | |
| BMGT410 | Government Accounting | |
| BMGT411 | Ethics and Professionalism in Accounting | |
| BMGT417 | Taxation of Corporations, Partnerships and Estates | |
| BMGT422 | Auditing Theory and Practice | |
| BMGT423 | Fraud Examination | |
| BMGT424 | Advanced Accounting | |
| BMGT428 | Special Topics in Accounting | |
| **Total Credits** | | **9** |

In addition to the major requirements listed above, please consult the list of College Requirements (p. 294) or http://rhsmith.umd.edu for a listing of additional Smith School degree requirements that apply to all Smith School majors.

The basic educational requirements of the Maryland State Board of Public Accountancy to sit for the CPA examination are a baccalaureate or higher degree with a major in Accounting or with a non-accounting degree supplemented by course work the Board determines to be substantially the equivalent of an Accounting major. Students planning to take the CPA examination for certification and licensing outside Maryland should determine the educational requirements for that state and arrange their program accordingly.

120 credits are required to complete a degree in Accounting; however, students seeking to become a Certified Public Accountant (CPA) must meet the certification requirements for the state in which they wish to practice. Most states, including Maryland, require a minimum of 150 credit hours of college education to fulfill the education requirements to obtain a CPA license. However many of these states, including Maryland, will allow applicants to take the CPA exam prior to earning 150 credits if they have accumulated 120 credits, earned a degree, and meet specified education requirements. In addition, do not assume the course and credit requirements for the accounting major are sufficient for all states. For details on various states' CPA requirements visit http://nasba.org.

The Accounting major is also offered at The Universities at Shady Grove (https://shadygrove.umd.edu/) in Montgomery County, Maryland. Go here (https://www.rhsmith.umd.edu/programs/undergraduate/shady-grove/) to see more information about the Robert H. Smith School of Business's undergraduate offerings at the Shady Grove campus.

# GRADUATION PLANS

Click here (https://www.rhsmith.umd.edu/programs/undergraduate/academics/academic-majors/) for roadmaps for graduation plans in the Robert H. Smith School of Business.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Business Analytics Minor

**Program Director:** Kazim Ruhi, Ph.D.

The Minor in Business Analytics integrates technology with statistical and quantitative modeling techniques to provide students with the foundation needed for data driven decision making, as well as for graduate study in the field of Business Analytics. Students with these skills are in high demand in a variety of industries and sectors including marketing, finance, information systems, operations, health care and energy.

For more information about this minor visit http://rhsmith.umd.edu/programs/undergraduate/academics/academic-minors/.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| Required Courses (9 credits) | | |
| BMGT402 | Database Systems [1] | 3 |
| BMGT430 | Data Modeling in Business [2] | 3 |
| BMGT431 | Data Analytics | 3 |
| Electives (6 credits) | | 6 |
| Minimum 3-6 credits from this list | | |
| BMGT302 | Essential Programming Skills for Business Analytics [3] | |
| BMGT332 | Quantitative Models for Management Decisions | |
| BMGT385 | Operations Management | |
| BMGT404 | Essential Data Skills for Business Analytics [4] | |
| BMGT408 | Emerging Topics in Information Systems (BMGT408E Big Data and AI using Cloud Computing and BMGT408V Data Visualization and Web Analytics) | |
| Maximum 3 credits from this list | | |
| BMGT484 | Digital Marketing | |
| BMGT347 | Quantitative Financial Analysis | |
| BMGT447 | | |
| BMGT438 | Special Topics in Operations Management (BMGT438A Applied Quantitative Analysis - QUEST only) | |
| CMSC422 | Introduction to Machine Learning [5] | |
| ECON414 | Game Theory [6] | |
| ENCE402 | Simulation and Design of Experiments for Engineers [7] | |
| ENEE436 | Foundations of Machine Learning (Formerly ENEE439M) [8] | |
| INST414 | Data Science Techniques [9] | |
| STAT430 | Introduction to Statistical Computing with SAS | |
| **Total Credits** | | **15** |

1 CMSC424 or INST327 can be used as a substitute
2 ECON422 or ECON424 can be used as a substitute for Economics Majors only
3 CMSC132 Object-Oriented Programming II or INST326 Object-Oriented Programming for Information Science can be used as a substitute
4 CMSC320 Introduction to Data Science is an approved substitute for Computer Science Majors
5 Computer Science Majors only.
6 Economics Majors only
7 Civil & Environmental Engineering only
8 Electrical and Computer Engineering Majors only
9 Information Science Majors only

# Computational Finance Minor (BMGT)

**Program Directors:** Albert S. Kyle, Ph.D. and Louiqa Raschid, Ph.D.

The Minor in Computational Finance will provide students with proficiency in applying analytical models and machine learning methods to solve challenging financial tasks. The Minor will introduce students to (pseudo) realistic tasks faced by financial analysts and researchers, as well as the real world datasets that are widely used across the financial industry and by financial regulators (e.g., SEC, FINRA, etc.). The Minor, which is only open to Computer Science majors, will equip students with the domain specific skills needed for positions in the financial industry (banking and investment) or with financial regulators (SEC, FINRA, Fannie Mae, etc.) or to explore innovative opportunities in the Financial Technology (FinTech) industry.

For more information about this minor visit http://rhsmith.umd.edu/programs/undergraduate/academics/academic-minors/.

## Program Learning Outcomes

1. Develop proficiency in manipulating financial datasets.
2. Apply analytical models to solve challenging financial tasks.
3. Apply machine learning methods to analyze financial datasets.
4. Engage with academic and industry mentors in a capstone project.
5. Engage in experiential learning projects that are designed to solve real world problems with real datasets.
6. Demonstrate analytical thinking skills through the use and application of analytical and machine learning methods.

## REQUIREMENTS

Admitted Computer Science majors will begin the minor in their junior year and MATH240, MATH241, and STAT400 (or equivalent courses) should be completed prior to entering the program. CMSC320 (or an equivalent course) should be completed either prior to beginning the minor or during a student's first semester in the minor.

| Course | Title | Credits |
|---|---|---|
| BUFN400 | Introduction to Financial Markets and Financial Datasets | 3 |
| CMSC320 | Introduction to Data Science | 3 |
| BUFN403 | Capstone Computational Finance Projects | 3 |
| One course from the following: | | 3 |
| BUFN401 | Option Theory and Derivatives | |
| BUFN402 | Portfolio Management | |
| One course from the following: | | 3 |
| CMSC421 | Introduction to Artificial Intelligence | |
| CMSC422 | Introduction to Machine Learning | |
| CMSC470 | Introduction to Natural Language Processing | |
| CMSC471 | Introduction to Data Visualization | |
| CMSC472 | Introduction to Deep Learning | |
| CMSC474 | Introduction to Computational Game Theory | |
| **Total Credits** | | **15** |

# Decision, Operations and Information Technologies

**The Robert H. Smith School of Business**
1570 Van Munching Hall
Phone: 301-405-2286
smithundergradinfo@umd.edu
http://rhsmith.umd.edu/undergrad/

# PROGRAMS

The Department of Decision, Operations, and Information Technologies offers two majors: Information Systems - Specialization: Business and Operations Management & Business Analytics.

## Majors

- Information Systems Major, Business Specialization (p. 299)
- Operations Management & Business Analytics Major (p. 300)

# ADVISING

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, smithundergradinfo@umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

# Information Systems Major, Business Specialization

**Notice of Addendum:** The program description was updated effective Spring 2025 and has been published on ADDENDA TO THIS CATALOG (p. 1113).

**Associate Dean:** Joseph Bailey, Ph.D.
**Assistant Dean:** Brian Horick

The Business Area of Concentration in the Information Systems (IS) program prepares students to be effective planners, users, and managers of information technologies and systems in the current environment of the technology-enabled business firm. The IS major focuses on the system design and implementation skills including database and web design, analytical skills for both strategic planning of IT and performance evaluation, and the managerial plus organizational knowledge required to manage information systems and applications based on business and customer requirements. The major's core emphasizes the concepts of systems analysis and design, and the strategic use of information systems. In addition to a broad grounding in the key functional areas of marketing, operations, accounting, and finance, this major develops in-depth knowledge of information systems design and implementation, evaluation and planning of information technology investments, and managing dynamic technology projects.

## Admission to the Major

See "Admission Requirements (p. 293)" on the Robert H. Smith School of Business page.

## Program Learning Outcomes

1. Apply elements of critical thinking.
2. Identify common situations in chosen career that could result in ethical dilemma.
3. Analyze ethical scenarios and apply frameworks to develop solutions.
4. Foster and sustain team environments that are inclusive of ideas from all contributing members.
5. Apply leadership skills to motivate and coordinate with other to achieve goals.
6. Write professional-grade business documents.
7. Develop and deliver effective oral presentations.
8. Identify and use appropriate quantitative tools and techniques.
9. Use software applications to analyze and solve problems.
10. Explain how functional areas interact and drive one another.
11. Utilize database management, queries and data warehousing solutions to support business intelligence and decision making.
12. Design an information system solution to problems of a real business enterprise.
13. Apply information system development methodologies to create, test, and document a functional information system for a real business enterprise.

# REQUIREMENTS

**Notice of Addendum:** requirements for this program were updated effective Spring 2025 and have been published on ADDENDA TO THIS CATALOG (p. 1113).

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 294) | | |
| **Major Requirements** | | |
| BMGT302 | Essential Programming Skills for Business Analytics [1] | 3 |
| BMGT402 | Database Systems [2] | 3 |
| BMGT403 | Systems Analysis and Design | 3 |
| BMGT407 | Information Systems Projects | 3 |
| Select two courses from list 'A' or one course from 'A' and one course from list 'B': | | 6 |
| List A: | | |
| BMGT405 | | |
| BMGT406 | Developing Applications for the Web and Social Media | |
| BMGT408 | Emerging Topics in Information Systems [3] | |
| BMGT476 | Technology Applications in Supply Chain Management | |
| BMGT485 | Project Management | |
| BMGT404 | Essential Data Skills for Business Analytics | |
| List B: | | |
| BMGT326 | Accounting Systems | |
| BMGT332 | Quantitative Models for Management Decisions | |
| BMGT385 | Operations Management | |
| BMGT430 | Data Modeling in Business | |
| BMGT461 | Entrepreneurship | |
| BMGT484 | Digital Marketing | |
| **Upper Level Economics Requirements** | | |
| Select one of the following: | | 3-4 |
| ECON305 | Intermediate Macroeconomic Theory and Policy | |
| ECON306 | Intermediate Microeconomic Theory & Policy | |
| ECON330 | Money and Banking | |
| ECON340 | International Economics | |
| **Total Credits** | | **21-22** |

[1] CMSC132 Object-Oriented Programming II is approved substitute

[2] CMSC424 Database Design is approved substitute
[3] repeatable if content differs

Note: Students who have completed either ECON325 (https://academiccatalog.umd.edu/search/?P=ECON325) or ECON326 (https://academiccatalog.umd.edu/search/?P=ECON326) can substitute these courses for ECON305 (https://academiccatalog.umd.edu/search/?P=ECON305) or ECON306 (https://academiccatalog.umd.edu/search/?P=ECON306) respectively.

In addition to the major requirements listed above, please consult the Summary of Bachelor of Science Degree Requirements (All Curricula) (p. 294) on the College Requirements section or www.rhsmith.umd.edu (http://www.rhsmith.umd.edu) for a listing of additional Smith School degree requirements that apply to all Smith School majors.

## GRADUATION PLANS

Click here (https://www.rhsmith.umd.edu/programs/undergraduate/academics/academic-majors/) for roadmaps for graduation plans in the Robert H. Smith School of Business.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Operations Management & Business Analytics Major

**Associate Dean:** Joseph Bailey, Ph.D.
**Assistant Dean:** Brian Horick

The Operations Management & Business Analytics major will provide students with the knowledge and skills necessary to successfully apply quantitative and statistically based modeling techniques to data and advantageously use the information in the data to drive decision making and improve performance in an era with massive amounts of data. Students with these skills are in high demand and career opportunities exist in the public and private sectors in a variety of industries including energy, finance, insurance, health care, logistics and marketing.

## Admission to the Major

See "Admission Requirements (p. 293)" on the Robert H. Smith School of Business page.

## Program Learning Outcomes

1. Apply elements of critical thinking.
2. Identify common situations in chosen career that could result in ethical dilemma.
3. Analyze ethical scenarios and apply frameworks to develop solutions.
4. Foster and sustain team environments that are inclusive of ideas from all contributing members.
5. Apply leadership skills to motivate and coordinate with other to achieve goals.
6. Write professional-grade business documents.
7. Develop and deliver effective oral presentations.
8. Identify and use appropriate quantitative tools and techniques.
9. Use software applications to analyze and solve problems.
10. Explain how functional areas interact and drive one another.
11. Select and justify the best solution option(s) for a given management problem.
12. Classify the sources of uncertainty within a process and apply operations management approaches to manage uncertainty so as to minimize waste and improve efficiency.
13. Describe and effectively use advanced data modeling techniques to predict and infer from real-world data sets.

## REQUIREMENTS

Students interested in graduate work in Operations Management & Business Analytics are strongly advised to complete MATH141, MATH240 and MATH241 in addition to the lower level courses required of all Smith School students.

The course requirements for the junior-senior curriculum concentration in Operations Management & Business Analytics are as follows:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 294) | | |
| **Major Requirements** | | |
| BMGT332 | Quantitative Models for Management Decisions | 3 |
| BMGT385 | Operations Management | 3 |
| BMGT430 | Data Modeling in Business | 3 |
| BMGT431 | Data Analytics | 3 |
| BMGT434 | Analytics Consulting: Cases and Projects | 3 |
| or BMGT435 | Business Process Simulation | |
| Select one of the following: | | 3 |
| BMGT434 | Analytics Consulting: Cases and Projects [1] | |
| BMGT435 | Business Process Simulation [1] | |
| BMGT372 | Introduction to Logistics and Supply Chain Management | |
| BMGT403 | Systems Analysis and Design | |
| BMGT404 | Essential Data Skills for Business Analytics | |
| BMGT485 | Project Management | |
| BMGT487 | Six Sigma Innovation | |
| BMGT490 | QUEST Capstone Professional Practicum (BMGT490H-The Total Quality Practicum) [2] | |
| **Upper Level ECON Requirements** | | |
| Select one of the following: | | 3-4 |
| ECON305 | Intermediate Macroeconomic Theory and Policy | |
| ECON306 | Intermediate Microeconomic Theory & Policy | |
| ECON330 | Money and Banking | |
| ECON340 | International Economics | |
| **Total Credits** | | **21-22** |

[1] If not selected in the above requirement
[2] Open only to QUEST students

Note: Students who have completed either ECON325 Intermediate Macroeconomic Analysis or ECON326 Intermediate Microeconomic Analysis can substitute these courses for ECON305 or ECON306, respectively. BMGT341 Financial Markets is an approved substitute for ECON330.

In addition to the major requirements listed above, please consult the Summary of Bachelor of Science Degree Requirements (All Curricula) (p. 294) on the College Requirements section or www.rhsmith.umd.edu (http://www.rhsmith.umd.edu) for a listing of additional Smith School degree requirements that apply to all Smith School majors.

## GRADUATION PLANS

Click here (https://www.rhsmith.umd.edu/programs/undergraduate/academics/academic-majors/) for roadmaps for graduation plans in the Robert H. Smith School of Business.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Finance

**The Robert H. Smith School of Business**
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http://rhsmith.umd.edu/undergrad/

## PROGRAMS

### Major

- Finance Major (p. 301)

## ADVISING

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, smithundergradinfo@umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

# Finance Major

**Associate Dean:** Joseph Bailey, Ph.D.
**Assistant Dean:** Brian Horick

Finance encompasses:

1. Corporate finance: The financial management of corporations
2. Investments: The management of securities and portfolios
3. Financial institutions and markets: The management of financial institutions and the study of their role in the economy

The Finance curriculum is designed to familiarize the student with the institutions, theory, and practice involved in the allocation of financial resources within the private sector. It provides an educational foundation for careers involving corporate financial analysis and management, investment analysis and portfolio management, investment banking, risk management, commercial banking, and international finance; it also provides a foundation for graduate study in business administration, economics, and law.

## Admission to the Major

See "Admission Requirements (p. 293)" on the Robert H. Smith School of Business page.

## Program Learning Outcomes

1. Apply elements of critical thinking.
2. Identify common situations in chosen career that could result in ethical dilemma.
3. Analyze ethical scenarios and apply frameworks to develop solutions.
4. Foster and sustain team environments that are inclusive of ideas from all contributing members.
5. Apply leadership skills to motivate and coordinate with other to achieve goals.
6. Write professional-grade business documents.
7. Develop and deliver effective oral presentations.
8. Identify and use appropriate quantitative tools and techniques.
9. Use software applications to analyze and solve problems.
10. Explain how functional areas interact and drive one another.
11. Apply financial theory to solve a problem where a change in capital structure impacts the cost of equity capital.
12. Analyze capital budgeting using discounted cash flow techniques.
13. Determine the value of a firm with and without leverage.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 294) | | |
| BMGT343 | Investments | 3 |
| BMGT440 | Advanced Financial Management | 3 |
| Select four of the following courses: | | 12 |
| BMGT342 | Wall Street Finance | |
| BMGT347 | Quantitative Financial Analysis | |
| BMGT441 | Fixed Income | |
| BMGT442 | Advanced Portfolio Management | |
| BMGT443 | Applied Equity Analysis and Portfolio Management | |
| BMGT444 | Futures and Options Contracts | |
| BMGT445 | Banking and Financial Institutions | |
| BMGT446 | International Finance | |
| BMGT447 | | |
| Intermediate ECON | One intermediate Macro (ECON305/ECON325) or Micro (ECON306/ECON326) course | |
| In addition, a MAXIMUM OF ONE of the following courses (3cr) may be applied towards this 12 cr requirement: | | |
| BMGT349 | Private Equity and Venture Capital | |
| BMGT448 | Special Topics in Finance | |
| BMGT449 | Investment Fund Management: Lemma Senbet Fund | |
| Select one of the following: | | 3 |
| BMGT310 | Intermediate Accounting I | |
| BMGT313 | Financial Statement Analysis | |
| BMGT332 | Quantitative Models for Management Decisions | |
| BMGT430 | Data Modeling in Business | |

| | | |
|---|---|---|
| | BMGT438A Applied Quantitative Analysis (QUEST) and ECON423 Econometrics II (ECON majors) are approved as course substitutes for this major requirement. | |
| **Upper Level Economics Requirements for the Finance major** | | |
| ECON330 | Money and Banking | 3 |
| or BMGT341 | Financial Markets | |
| **Total Credits** | | **24** |

# GRADUATION PLANS

Click here (https://www.rhsmith.umd.edu/programs/undergraduate/academics/academic-majors/) for roadmaps for graduation plans in the Robert H. Smith School of Business.

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- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# General Business Minor

**Associate Dean:** Joseph Bailey, Ph.D.
**Assistant Dean:** Brian Horick

The General Business minor provides the business savvy to complement the depth of knowledge acquired in the students' chosen area of major, so they excel in their careers after graduation. Note: The General Business minor is not open to declared Business majors.

For more information about this minor visit http://rhsmith.umd.edu/programs/undergraduate/academics/academic-minors/.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| Core (3 credits each, 4 courses/12 credits required) | | |
| BMGT210 | Foundations of Accounting for Non Business Majors [1] | 3 |
| BMGT345 | Foundations of Financial Management for Non Business Majors (BMGT340 can substitute) [2] | 3 |
| BMGT355 | Foundations of Marketing for Non Business Majors (BMGT350 can substitute) | 3 |
| BMGT395 | Principles of Management for Non Business Majors (BMGT364 can substitute ) | 3 |
| Electives (3 credits each, 1 course required) | | 3 |
| BMGT301 | Introduction to Information Systems | |
| BMGT375 | Supply Chain Management for Non Business Majors (BMGT372 can satisfy) | |
| **Total Credits** | | **15** |

1 BMGT220 and BMGT221 will meet the BMGT210 requirement.
2 Prerequisite of BMGT210 required

# Innovation & Entrepreneurship Minor

**Associate Dean:** Joseph Bailey, Ph.D.
**Assistant Dean:** Brian Horick

The Innovation & Entrepreneurship minor draws on core principles in innovation and entrepreneurship to give students the fundamentals that they need to excel in the industry. With a focus on critical and creative thinking, the minor will serve students who aspire to be an innovator and creative thinker, or an entrepreneur starting a new firm. Importantly, the Minor will provide the student knowledge which complements the in-depth expertise within their major field of study by building the entrepreneurial mindset, skills, and relationships invaluable to developing innovative, impactful solutions to today's problems.

The program allows students to supplement their primary course of study and provides the knowledge, skill sets and credentials to compete in today's fiercely competitive employment market. The minor gives a broad understanding of the business process, both for corporate and entrepreneurial businesses. The minor courses are application-oriented, exploring theoretical approaches and emphasizing the implementation of those theories across a wide range of real-world contexts. The Innovation and Entrepreneurship Minor is designed for capturing the economic value in creative ideas for commercially viable products and services. It enhances a student's understanding of innovation and entrepreneurship, encourages exploration into personal career opportunities, and develops specific competencies in the creation, growth, and leadership of innovative or entrepreneurial firms.

For more information about this minor visit http://rhsmith.umd.edu/programs/undergraduate/academics/academic-minors/.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| BMGT461 | Entrepreneurship (Take the "M" version of 461, BMGT461M) | 3 |
| BMGT365 | Entrepreneurial Finance and Private Equity [1] | 3 |
| BMGT366 | Growth Strategies for Emerging Companies [1] | 3 |
| Complete 6 credits from the following courses: | | 6 |
| BMGT289B | How Do Innovators Think? | |
| BMGT289A | Social Enterprise: Changing the World through Innovation and Transformative Action | |
| BMGT289E | Entrepreneurial Thinking for Non-Business Majors: How Not to Miss Great Opportunities Your Life Throws at You | |
| BMGT362 | Negotiations | |
| BMGT369 | Experiential Learning in Business Innovation and Entrepreneurship | |
| BMGT382 | Marketing and Innovation for Entrepreneurs | |
| or BMGT352 | Customer Centric Innovation - Smith Majors only | |
| BMGT467 | Strategic Innovation and Entrepreneurship | |
| BMGT468 | Special Topics in Management and Organization (Specifically BMGT468R: Fearless Founders: New Venture Practicum, BMGT468T: Creativity for Business Leaders and Entrepreneurs Outdoor Edition and BMGT468Z: Create the Future through Systems Thinking and Design) | |
| **Total Credits** | | **15** |

1 Prerequisite required, see Testudo for details

# Logistics, Business, and Public Policy

**The Robert H. Smith School of Business**
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http://rhsmith.umd.edu/undergrad/

## PROGRAMS

### Majors

Two curriculum concentrations are offered through the Logistics, Business, and Public Policy Department:

- International Business Major (p. 303)
- Supply Chain Management Major (p. 303)

## ADVISING

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, smithundergradinfo@umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217, or visit http://orientation.umd.edu.

# International Business Major

**Associate Dean:** Joseph Bailey, Ph.D.
**Assistant Dean:** Brian Horick

**International Business** responds to the global interest in international economic systems and their multicultural characteristics. This degree combines the college-required courses with International Business courses and provides students the opportunity to apply a specified upper level foreign language course toward this specialization's requirements. It is strongly recommended that this program be declared in combination with another major in or outside of business in order to assure that graduates will have specialized career focus.

## Admission to the Major

See "Admission Requirements (p. 293)" on the Robert H. Smith School of Business page.

## Program Learning Outcomes

1. Apply elements of critical thinking.
2. Identify common situations in chosen career that could result in ethical dilemma.
3. Analyze ethical scenarios and apply frameworks to develop solutions.
4. Foster and sustain team environments that are inclusive of ideas from all contributing members.
5. Apply leadership skills to motivate and coordinate with other to achieve goals.
6. Write professional-grade business documents.
7. Develop and deliver effective oral presentations.
8. Identify and use appropriate quantitative tools and techniques.
9. Use software applications to analyze and solve problems.
10. Explain how functional areas interact and drive one another.
11. Identify and justify optimal transportation modes given the business needs of the shipper.
12. Given various assumptions, analyze cost-service trade-offs and determine optimal inventory practices based on business needs.
13. Identify and apply supply chain management principles and appropriate information technologies to solve real world problems in a global environment.

## REQUIREMENTS

Course requirements for the junior-senior curriculum concentration in International Business are:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 294) | | |
| BMGT392 | Introduction to International Business Management | 3 |
| BMGT454 | Global Marketing | 3 |
| BMGT477 | International Supply Chain Management | 3 |
| BMGT446 | International Finance | 3 |
| BMGT463 | Cross-cultural Challenges in Business | 3 |
| BMGT466 | Global Business Strategy | 3 |
| Select one of the following: | | 3-4 |
| ECON305 | Intermediate Macroeconomic Theory and Policy | |
| ECON306 | Intermediate Microeconomic Theory & Policy | |
| ECON330 | Money and Banking | |
| ECON340 | International Economics | |
| **Total Credits** | | **21-22** |

Note: Students who have completed ECON325 and ECON326 can substitute these courses for ECON305 and ECON306, respectively. In addition, BMGT341 can substitute for ECON330.

In addition to the major requirements listed above, please see the Roberts H. Smith School of Business under The Colleges and Schools or www.rhsmith.umd.edu (http://www.rhsmith.umd.edu) for a listing of additional Smith School degree requirements that apply to all Smith School majors.

## GRADUATION PLANS

Click here (https://www.rhsmith.umd.edu/programs/undergraduate/academics/academic-majors/) for roadmaps for graduation plans in the Robert H. Smith School of Business.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Supply Chain Management Major

**Associate Dean:** Joseph Bailey, Ph.D.
**Assistant Dean:** Brian Horick

The predominance of business activity taking place on a global scale has increased the opportunities for integrated supply chain management

to have a profound impact on value chain performance. The supply chain encompasses all organizations involved in the production of a good or service and its ultimate delivery to the end consumer. Supply chain managers oversee many varied but inter-related processes including the flows of materials, funds, and information. The scope of a supply chain manager includes all of the following: demand planning, procurement and supplier management, inventory and production operations, transportation and distribution, warehousing, retail sales, customer relationship management, and reverse logistics. Supply chain managers increasingly incorporate sustainability concepts into their decision processes. Students pursuing a supply chain major will develop theoretical, analytical, and software skills designed to prepare them for careers in a variety of fields.

## Admission to the Major

See "Admission Requirements (p. 293)" on the Robert H. Smith School of Business page.

## Program Learning Outcomes

1. Apply elements of critical thinking.
2. Identify common situations in chosen career that could result in ethical dilemma.
3. Analyze ethical scenarios and apply frameworks to develop solutions.
4. Foster and sustain team environments that are inclusive of ideas from all contributing members.
5. Apply leadership skills to motivate and coordinate with others to achieve goals.
6. Write professional-grade business documents.
7. Develop and deliver effective oral presentations.
8. Identify and use appropriate quantitative tools and techniques.
9. Use software applications to analyze and solve problems.
10. Explain how functional areas interact and drive one another.
11. Identify and justify optimal transportation modes given the business needs of the shipper.
12. Given various assumptions, analyze cost-service trade-offs and determine optimal inventory practices based on business needs.
13. Identify and apply supply chain management principles and appropriate information technologies to solve real world problems in a global environment.

# REQUIREMENTS

Course requirements for the junior-senior curriculum concentration in Supply Chain Management are as follows:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 294) | | |
| BMGT370 | Introduction to Transportation | 3 |
| BMGT372 | Introduction to Logistics and Supply Chain Management | 3 |
| Select three of the following: | | 9 |
| BMGT373 | Supply Chain Management Internship [1] | |
| BMGT374 | Supply Chain Risk Management | |
| BMGT472 | Purchasing and Inbound Logistics | |
| BMGT475 | Supply Chain Strategy and Network Design | |
| BMGT476 | Technology Applications in Supply Chain Management | |
| BMGT477 | International Supply Chain Management | |
| BMGT478 | Special Topics in Supply Chain Management [2] | |
| Select one of the following: [3] | | 3 |
| BMGT302 | Essential Programming Skills for Business Analytics | |
| BMGT332 | Quantitative Models for Management Decisions | |
| BMGT385 | Operations Management | |
| BMGT392 | Introduction to International Business Management | |
| BMGT454 | Global Marketing | |
| BMGT461 | Entrepreneurship | |
| BMGT484 | Digital Marketing | |
| BMGT490 | QUEST Capstone Professional Practicum | |
| **Total Credits** | | **18** |

1. A maximum of 3 credits of BMGT373 can fulfill Supply Chain Management major requirements.
2. A maximum of 6 credits of BMGT478 can fulfill Supply Chain Management major requirements.
3. Or one of the following not selected above: BMGT373, BMGT374, BMGT472, BMGT475, BMGT476, BMGT477, or BMGT478 NOTE: a maximum of 3 credits of BMGT373 and a maximum of 6 credits of BMGT478 (if content differs) can fulfill Supply Chain Management major requirements.

In addition to the major requirements listed above, please see the Roberts H. Smith School of Business under The Colleges and Schools in this catalog or http://rhsmith.umd.edu for a listing of additional Smith School degree requirements that apply to all Smith School majors.

# GRADUATION PLANS

Click here (https://www.rhsmith.umd.edu/programs/undergraduate/academics/academic-majors/) for roadmaps for graduation plans in the Robert H. Smith School of Business.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Management

**The Robert H. Smith School of Business**
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smithundergradinfo@umd.edu
http://rhsmith.umd.edu/undergrad/

The Management major is also offered at The Universities at Shady Grove (https://shadygrove.umd.edu) in Montgomery County, Maryland. Go here (https://rhsmith.umd.edu/programs/undergraduate/shady-grove/) to see more information about the Robert H. Smith School of Business's undergraduate offerings at the Shady Grove campus.

# PROGRAMS

## Major

- Management Major (p. 305)

# ADVISING

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, smithundergradinfo@umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217, or visit http://orientation.umd.edu.

# Management Major

**Associate Dean:** Joseph Bailey, Ph.D.
**Assistant Dean:** Brian Horick

The Robert H. Smith School of Business has long been recognized as a leading undergraduate program in management and entrepreneurship. Both these programs regularly appear highly ranked in a variety of publications. The management major focuses on leadership and entrepreneurship to engage students in critical thinking and problem solving applicable in many careers.

The core of the management major offers two courses in leadership and negotiations. These core courses emphasize skills students need in a changing employment environment. As more jobs become automated, managing people and solving tough problems will become increasingly important to attaining meaningful employment. The core classes in the management major provide education in problem solving, leadership, and effective teamwork. The demanding and fast-paced careers of the future will require students to demonstrate a strong ability to communicate and solve problems in a team under extreme pressure. The core major classes prepare students for careers in areas such as strategy, information technology, operations, healthcare administration, and organizational transformation.

There are a number of potential career paths stemming from the management major, such as consulting analyst, financial advisor, human resource management, nonprofit management, rotational leadership programs, and entrepreneur, including social entrepreneurship. These are grouped into two major areas of focus, leadership & innovation and entrepreneurship. Both areas focus on critical thinking and problem solving, and allow students to create a major tailored to their future goals.

The Management & Organization department has relationships with a number of centers of excellence, including the Dignman Center for Entrepreneurship and the Center for Leadership, Innovation and Change which provide relationships with professors, researchers, and organizations for students interested in enhancing their course of study with co-curriculuar opportunities.

# Admission to the Major

See "Admission Requirements (p. 293)" on the Robert H. Smith School of Business page.

# Program Learning Outcomes

1. Apply elements of critical thinking.
2. Identify common situations in chosen career that could result in ethical dilemma.
3. Analyze ethical scenarios and apply frameworks to develop solutions.
4. Foster and sustain team environments that are inclusive of ideas from all contributing members.
5. Apply leadership skills to motivate and coordinate with other to achieve goals.
6. Write professional-grade business documents.
7. Develop and deliver effective oral presentations.
8. Identify and use appropriate quantitative tools and techniques.
9. Use software applications to analyze and solve problems.
10. Explain how functional areas interact and drive one another.
11. Develop and implement a concrete, relevant, and practical action plan based on a set of leadership approaches and skills selected best for a given management problem.
12. Identify key strengths and weaknesses of students' leadership skills and abilities based on the assessment data and self-reflection.
13. Apply negotiation concepts to prepare for and execute an actual negotiation based on strategic and tactical choices made best for a given situation.
14. Identify key strengths and weaknesses of students' negotiation skills and styles based on the assessment data and self-reflection.

# REQUIREMENTS

Course requirements for the junior-senior curriculum concentration of the Management major are as follows:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 294) | | |
| BMGT363 | Leadership and Teamwork in Organizations | 3 |
| BMGT362 | Negotiations | 3 |
| Select four of the following: | | 12 |
| BMGT360 | Strategic Management of Human Capital | |
| BMGT366 | Growth Strategies for Emerging Companies | |
| BMGT461 | Entrepreneurship | |
| BMGT463 | Cross-cultural Challenges in Business | |
| BMGT466 | Global Business Strategy | |
| BMGT468 | Special Topics in Management and Organization [1] | |
| BMGT469 | Management and Organization Short-term Study Abroad [1] | |
| **Total Credits** | | **18** |

[1] A maximum combined total of 6 credits of BMGT468 and BMGT469 coursework can satisfy Management major requirements.

The Management major is also offered at The Universities at Shady Grove (https://shadygrove.umd.edu/) in Montgomery County, Maryland. Click here (https://www.rhsmith.umd.edu/programs/undergraduate/shady-grove/) to see more information about the Robert H. Smith School of Business's undergraduate offerings at the Shady Grove campus.

# GRADUATION PLANS

Click here (https://www.rhsmith.umd.edu/programs/undergraduate/academics/academic-majors/) for roadmaps for graduation plans in the Robert H. Smith School of Business.

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- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Marketing

**The Robert H. Smith School of Business**
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http://rhsmith.umd.edu/undergrad/

The Marketing major is also offered at The Universities at Shady Grove (https://shadygrove.umd.edu/) in Montgomery County, Maryland. Go here (https://www.rhsmith.umd.edu/programs/undergraduate/shady-grove/) to see more information about the Robert H. Smith School of Business's undergraduate offerings at the Shady Grove campus.

# PROGRAMS

## Major

- Marketing Major (p. 306)

# ADVISING

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, smithundergradinfo@umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217, or visit http://orientation.umd.edu.

# Marketing Major

**Associate Dean:** Joseph Bailey, Ph.D.
**Assistant Dean:** Brian Horick

The goal of marketing is to satisfy all the stakeholders of the firm - employees, dealers, stockholders, and customers - by seeing that quality goods and services are developed and provided at fair prices and in a way that benefits the community and society. World-class competition has forced businesses to develop marketing programs that are as good as the best. This means getting closer to the customer, joining other organizations to create value for the consumer, and designing integrated distribution and communication programs that provide a seamless flow from producers to consumers. Pricing, communication/promotion, product/service, and distribution activities inherent in the development of marketing programs are applicable to non-profit organizations, business-to-business organizations, and firms that sell to ultimate consumers.

Many types of careers are available to the marketing major. These include, but are not limited to: sales, advertising, retailing, product/service management, and marketing research. Because of the many different employment opportunities in marketing, many marketing electives are offered along with three core courses required of all marketing majors - consumer analysis, marketing research, and marketing strategy.

## Admission to the Major

See "Admission Requirements (p. 293)" on the Robert H. Smith School of Business page.

## Program Learning Outcomes

1. Apply elements of critical thinking.
2. Identify common situations in chosen career that could result in ethical dilemma.
3. Analyze ethical scenarios and apply frameworks to develop solutions.
4. Foster and sustain team environments that are inclusive of ideas from all contributing members.
5. Apply leadership skills to motivate and coordinate with other to achieve goals.
6. Write professional-grade business documents.
7. Develop and deliver effective oral presentations.
8. Identify and use appropriate quantitative tools and techniques.
9. Use software applications to analyze and solve problems.
10. Explain how functional areas interact and drive one another.
11. Apply consumer behavior concepts to solve real world issues in marketing.
12. Analyze survey data using appropriate tools and techniques and apply findings to resolve marketing issues.
13. Formulate STP plans and apply the proper alignment of 4Ps of marketing to solve real world problems in business.

# REQUIREMENTS

Course requirements for the junior-senior curriculum concentration in Marketing are as follows:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 294) | | |
| BMGT354 | Consumer Analysis | 3 |
| BMGT351 | Marketing Research Methods | 3 |
| BMGT457 | Marketing Policies and Strategies | 3 |
| Select three of the following: | | 9 |
| BMGT456 | Customer-Centric Innovation | |
| BMGT453 | Retail Management | |
| BMGT357 | Marketing Internship | |
| BMGT372 | Introduction to Logistics and Supply Chain Management | |
| BMGT450 | Integrated Marketing Communications | |
| BMGT454 | Global Marketing | |
| BMGT455 | Sales Management | |
| BMGT458 | Special Topics in Marketing (maximum of 6 credits if content differs) | |
| BMGT484 | Digital Marketing | |
| **Upper Level Economics Requirements** | | |
| Select one of the following: | | 3-4 |

| | | |
|---|---|---|
| ECON305 | Intermediate Macroeconomic Theory and Policy | |
| ECON306 | Intermediate Microeconomic Theory & Policy | |
| ECON330 | Money and Banking | |
| ECON340 | International Economics | |
| **Total Credits** | | **21-22** |

Note: Students who have completed ECON325 and ECON326 can substitute these courses for ECON305 and ECON306 respectively.

In addition to the major requirements listed above, please consult "Colleges and Schools" on this site or www.rhsmith.umd.edu (http://www.rhsmith.umd.edu) for a listing of additional Smith School degree requirements that apply to all Smith School majors.

The Marketing major is also offered at The Universities at Shady Grove (https://shadygrove.umd.edu/) in Montgomery County, Maryland. Click here (https://www.rhsmith.umd.edu/programs/undergraduate/shady-grove/) to see more information about the Robert H. Smith School of Business's undergraduate offerings at the Shady Grove campus.

# GRADUATION PLANS

Click here (https://www.rhsmith.umd.edu/programs/undergraduate/academics/academic-majors/) for roadmaps for graduation plans in the Robert H. Smith School of Business.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# College of Computer, Mathematical, and Natural Sciences

1300 Symons Hall
Phone: 301-405-2080
cmnsque@umd.edu
http://cmns.umd.edu

**Dean:** Amitabh Varshney, Ph.D.
**Associate Deans**: Robert Infantino, Ph.D.
**Assistant Deans:** Wendy Loughlin, Joelle Presson, Ph.D., Katerina Thompson, Ph.D., Stacia Woycheck

Nationally and internationally recognized for our educational programs, research excellence, distinguished faculty and students, the College of Computer, Mathematical, and Natural Sciences (CMNS) (http://cmns.umd.edu) is a critical educational and scientific resource benefiting the region and the nation. The college offers every student a high-quality, innovative, and cross-disciplinary educational experience. Strongly committed to making studies in the sciences available to all, the college actively encourages and supports the recruitment and retention of women and minorities underrepresented in our disciplines.

Our students participate in the University Honors College (http://honors.umd.edu), College Park Scholars (http://scholars.umd.edu), the First-Year Innovation & Research Experience (FIRE) Program (http://fire.umd.edu), Carillon Communities (https://carillon.umd.edu/), Quest (http://rhsmith.umd.edu/programs/undergraduate-programs/academics/fellows-special-programs/quest/) and the Hinman CEOs (http://hinmanceos.umd.edu/) programs, other learning communities, departmental honors programs, and many other co-curricular opportunities. Our students pursue research projects in faculty laboratories, or in the rich cluster of federal and private research institutions in proximity to our campus; they apply their lab and classroom skills through internships at area companies, non-governmental organizations, and in clinical settings. Excellent advising and career services guide our students through their academic program, and facilitate transition to graduate programs and professional schools, private-sector employment, and public service careers. Our innovative and entrepreneurial graduates pursue careers in a great many fields and professions.

In collaboration with the College of Education, we are working to increase the quality and number of teachers prepared to teach science and mathematics in secondary schools. In our Terrapin Teachers program (https://tt.umd.edu), students gain experience through their science and pedagogy coursework, and make an impact through work in local K-12 schools beginning in their first semester in the program.

# DEPARTMENTS

## Departments and Units

- Astronomy (p. 311)
- Atmospheric and Oceanic Science (p. 314)
- Biology (p. 324)
- Cell Biology and Molecular Genetics (p. 327)
- Chemistry and Biochemistry (p. 328)
- Computer Science (p. 332)
- Entomology (p. 340)
- Geology (p. 342)
- Mathematics (p. 351)
- Physics (p. 360)

# ACADEMIC PROGRAMS

## Majors

- Astronomy Major (p. 312)
- Atmospheric and Oceanic Science Major (p. 315)
- Biochemistry Major (p. 329)
- Biological Sciences Major (p. 318)
- Chemistry Major (B.A., B.S.) (p. 330)
- Computer Science Major (p. 333)
- Geology Major (p. 345)
- Immersive Media Design Major (CMSC) (p. 337)
- Mathematics Major (p. 353)
- Neuroscience Major (CMNS) (p. 325)
- Physics Major (p. 361)

## Minors

- Actuarial Mathematics Minor (p. 352)
- Astronomy Minor (p. 313)
- Atmospheric Chemistry Minor (p. 317)
- Atmospheric Sciences Minor (p. 317)
- Computational Finance Minor (CMSC) (p. 332)
- Computer Science Minor (p. 336)
- Data Science Minor (CMSC) (p. 336)
- Data Science Minor (MATH) (p. 353)
- Earth History Minor (p. 344)
- Earth Material Properties Minor (p. 344)
- Entomology Minor (p. 341)
- Geochemistry Minor (p. 344)
- Geophysics Minor (p. 348)
- Hydrology Minor (p. 349)
- Mathematics Minor (p. 359)
- Meteorology Minor (p. 318)
- Paleobiology Minor (ENTM) (p. 341)
- Paleobiology Minor (GEOL) (p. 349)
- Physics Minor (p. 363)
- Planetary Sciences Minor (ASTR) (p. 313)
- Planetary Sciences Minor (GEOL) (p. 350)
- Robotics and Autonomous Systems Minor (CMSC) (p. 339)
- Statistics Minor (p. 360)
- Surficial Geology Minor (p. 351)

# ADVISING

Every student in the college is assigned an academic advisor, who may be a faculty member or a professional staff member of the college or academic department. Advisors work with students to develop their programs and to ensure that they are making required progress toward the degree. Educational and career goals, academic progress, and pre-registration course planning are among the topics discussed during

advising sessions. Advisors can also help students connect to valuable opportunities and resources on- and off-campus.

Advising is mandatory for most CMNS students, and all are encouraged to take advantage of this service. Specific information about advising appears on the college website at http://cmns.umd.edu/undergraduate/advising-academic-planning/.

The University Career Center & The President's Promise (https://careers.umd.edu) provides a diverse array of resources and opportunities for students to explore and develop career-related aspirations – beginning as new students and even serving Terp alumni. The University Career Center@CMNS is a partnership that provides college-level career services support and activities more focused on the needs of CMNS majors. For more information, contact UCC@CMNS Program Director Rebecca Ryan (ryanreb@umd.edu), 2311 Symons Hall.

Students interested in pursuing careers in the health professions can find additional advising support from the Reed-Yorke Health Professions Advising Office (http://prehealth.umd.edu), 2300 Symons Hall, 301-405-7805.

# OPPORTUNITIES

## Living-Learning Programs

The college sponsors several living-learning programs which offer special academic and co-curricular opportunities to participants.

### Advanced Cybersecurity Experiences for Students

**Program Director:** Dr. Michel Cukier

Advanced Cybersecurity Experiences for Students (ACES) (http://aces.umd.edu) is the newest living-learning program in the Honors College (http://www.honors.umd.edu/). It exposes students to the breadth of technical and non-technical aspects of this emerging field, preparing future leaders in the field of cybersecurity through an interdisciplinary curriculum, hands-on experience with real-world problems, and internships with companies and government agencies.

### Integrated Life Sciences

**Program Director:** Dr. Najib El-Sayed

The Integrated Life Sciences Program (ILS) (http://ils.umd.edu) in the University Honors College was created to offer students enhanced cross-disciplinary training in the life sciences through an innovative curriculum and research and internship opportunities.

### Design Cultures & Creativity

CMNS faculty members also contribute to the course offerings of the Design Cultures & Creativity (https://dcc.umd.edu) honors program that emphasizes interdisciplinary approaches to exploring emerging technologies and their global impacts.

### College Park Scholars

The college sponsors three programs in the College Park Scholars (CPS) (http://scholars.umd.edu) living-learning program which draw upon the breadth of the academic disciplines and faculty expertise in CMNS. Each of these two-year programs brings students together around a common disciplinary focus through courses, seminars, and experiential learning opportunities. The programs inspire students to develop their interests and intellectual capacity by building a community in which everyone has shared interests in scholarly pursuits, in close contact with faculty who are working at the forefront of their fields of expertise.

#### CPS - Life Sciences

http://scholars.umd.edu/programs/ls/
**Acting Director:** Ms. Erin Thompson

#### CPS - Science and Global Change

http://scholars.umd.edu/programs/sgc/
**Director:** Dr. Thomas R. Holtz, Jr.
**Associate Director:** Dr. John Merck, Jr.

## Specialized Academic Programs

An important part of the content of CMNS majors is delivered outside the classroom, including programs of support and advising for post-undergraduate study, postbaccalaureate programs, and research opportunities.

We encourage students to leverage one of our greatest campus and regional assets through mentored research. Our students experience scientific discovery first hand, as conceptual learning in class is integrated and applied. Each major provides access to a variety of research experiences that will provide opportunities to collaborate with faculty members, postdoctoral fellows, graduate, and undergraduate students. Our geographic location also offers many unique opportunities for students to gain research and internship experience in federal laboratories and agencies, private companies, and non-governmental organizations. Employers and graduate schools look for research experience in applicants. Be a part of the science discovery in CMNS, which places the college among the top public and private universities worldwide. More information about research opportunities are provided on the college website (http://cmns.umd.edu/undergraduate/research-internships/), and on departmental webpages.

### Pre-Health Professions Advising and Programs

2300 Symons Hall
Phone: 301-405-7805
preprof@umd.edu
http://prehealth.umd.edu

**Director of Health Professions Advising Office:** Asst. Dean Wendy Loughlin
**Assistant Director:** Jeff Hall
**Advisors:** Aaliyah Flores, Brittany Gonzalez, Peggy Wolf

The Reed-Yorke Health Professions Advising Office (HPAO), part of the College of Computer, Mathematical, and Natural Sciences, serves University of Maryland students and alumni interested in pursuing careers in medicine, dentistry, or allied health fields. For more information, please see Reed-Yorke Health Professions Office (http://prehealth.umd.edu).

### Departmental Honors Research Programs

In addition to our living-learning programs described above, CMNS departments offer research-intensive departmental honors programs to which students may apply. Based on a student's performance in a multi-semester mentored research project and defense of a written thesis, the department may recommend that candidates receive their bachelor's degree with Departmental Honors or Departmental High Honors. Successful completion of departmental honors is recognized on a student's diploma and transcript. Participation in the University Honors College is not a prerequisite for participation in departmental

honors programs. See individual CMNS department websites (http://cmns.umd.edu/departments/) for more information.

### Science in the Evening

301-405-7892
sie.umd.edu (https://exst.umd.edu/professionals-post-baccalaureates/post-baccalaureate-programs/science-evening/)

**Director:** Dr. Joelle Presson, jpresson@umd.edu
**Administrative Assistant:** Elaine Shaw-Taylor

Prepare for a life-sciences career with the postbaccalaureate program **Science in the Evening**. The program provides the basic foundational curriculum in biology, chemistry, and physics for students who already have a bachelor's degree. The program prepares students to apply to medical, dental, and veterinary schools or biotechnology/biosciences graduate programs. SIE offers rigorous academics, outstanding faculty, and exceptional advising. The program also serves those who wish to advance their careers in law, business, government service, or biotechnology with academic credentials in the basic sciences.

## Student Engagement and Service Units

CMNS Student Services Office
1300 Symons Hall
Phone: 301-405-2080
cmnsque@umd.edu

The College Student Services Office coordinates orientation and advising services, reviews dean's exception to policy requests, and fields inquiries about academic regulations, transfer credit review, study abroad, and other undergraduate program matters. Each department is also served by an undergraduate program office which coordinates departmental academic advising.

## Financial Assistance

The College Scholarships page (http://cmns.umd.edu/undergraduate/scholarships/) provides a list of scholarships and awards administered at the college level for currently enrolled students, and information about the application process. Students complete an electronic application to be considered for all merit and need-based scholarships administered by the college for which they are eligible. The annual application deadline for scholarship applications for returning students is in May.

See department websites (http://cmns.umd.edu/departments/) for more information about undergraduate scholarships based in the departments of CMNS.

## Awards

See the college website (http://cmns.umd.edu/undergraduate/scholarships/) for a complete listing of undergraduate scholarships and awards.

## Research Units

In addition to our academic departments, many undergraduate students pursue mentored research projects in the college's research centers and institutes. Contact information for the centers and institutes are provided below. Information about the scope of research in the unit, as well as affiliated faculty, is provided on the website of each center or institute.

### Brain-Behavior Institute

Phone: 301-405-6487
http://bbi.umd.edu
**Director:** Dr. Konstantin Cherkas

### Brin Mathematics Research Center

4146 Computer Science Instructional Center
Phone: 301-405-0652
http://brinmrc.umd.edu
**Director:** Dr. Doron Levy

### Center for Bioinformatics and Computational Biology

3234 Brendan Iribe Center for Computer Science and Engineering
Phone: 301-405-5936
http://cbcb.umd.edu
**Director:** Dr. Michael Cummings

### Earth System Science Interdisciplinary Center

5825 University Research Court
Phone: 301-405-5599
http://essic.umd.edu
**Interim Director:** Ralph Ferraro

### Institute for Advanced Computer Studies

3134 Brendan Iribe Center for Computer Science and Engineering
Phone: 301-405-6722
http://umiacs.umd.edu
**Director:** Dr. Mihai Pop

### Institute for Bioscience and Biotechnology Research

9600 Gudelsky Drive
Rockville MD 20850
Phone: 240-314-6000
http://ibbr.umd.edu
**Co-Directors:** Dr. Jonathan Dinman (UMD), Dr. David Weber (UMB), and Dr. John Marino (NIST)

### Institute for Physical Science and Technology

4211 Atlantic Building
Phone: 301-405-4814
http://ipst.umd.edu
**Director:** Dr. Konstantina Trivisa

### Institute for Research in Electronics and Applied Physics

Energy Research Facility
Phone: 301-405-4951
http://ireap.umd.edu
**Director:** Dr. Yanne Chembo

### Joint Center for Quantum Information and Computer Science

3100 Atlantic Building
Phone: 301-314-1840
http://quics.umd.edu
**Co-Directors:** Dr. Andrew Childs and Dr. Yi-Kai Liu

### Joint Quantum Institute

2207 Atlantic Building
Phone: 301-405-1300
http://jqi.umd.edu
**Co-Directors:** Dr. Jay Deep Sau and Dr. Gretchen Campbell

### Joint Space-Science Institute

Phone: 301-405-1507
http://jsi.astro.umd.edu
**Director:** Dr. Christopher Reynolds

### Maryland Cybersecurity Center

5234 Brendan Iribe Center for Computer Science and Engineering
Phone: 301-405-0794
http://cyber.umd.edu
**Director:** Dr. Michelle Mazurek

### Maryland Nanocenter

1119 Kim Engineering Building
http://nanocenter.umd.edu
**Director:** Dr. Sang Bok Lee

### Norbert Wiener Center for Harmonic Analysis and Applications

2211 Mathematics Building
Phone: 301-405-5058
http://norbertwiener.umd.edu
**Director:** Dr. John J. Benedetto

### National Socio-Environmental Synthesis Center (SESYNC)

One Park Place, Suite 300
Annapolis MD
Phone: 410-919-4810
http://sesync.org
**Director:** Dr. Margaret Palmer

### Quantum Institute for Robust Simulation

3100 Atlantic Building
Phone: 301-314-1840
http://rqs.umd.edu
**Director:** Dr. Andrew Childs

### Quantum Materials Center

0368 Physics Building
Phone: 301-405-8285
http://qmc.umd.edu
**Director:** Dr. Johnpierre Paglione

### Quantum Technology Center

2457 AV Williams Building
Phone: 301-405-3114
http://qtc.umd.edu
**Director:** Dr. Ronald Walsworth

# Astronomy

**College of Computer, Mathematical & Natural Sciences**
1208 Physical Sciences Complex
Phone: 301-405-3001
astro-ug@umd.edu
http://astro.umd.edu

The Department of Astronomy aims to achieve excellence in research, education, and outreach in the areas of astronomy and astrophysics. We maintain internationally recognized research programs that address fundamental questions on all scales from our solar system to the entire universe. Our observations cover the entire electromagnetic spectrum from radio waves to gamma rays, and we make use of telescopes all over the world as well as space telescopes and space missions. Our theoretical work makes use of state-of-the-art computational resources. Both our graduate and undergraduate curricula are continuously revised and updated, and we receive high student evaluations in our introductory courses and courses for majors.

## PROGRAMS

## Major

- Astronomy Major (p. 312)

## Minors

- Astronomy Minor (p. 313)
- Planetary Sciences Minor (ASTR) (p. 313)

## ADVISING

The Astronomy undergraduate program has mandatory advising each semester before an undergraduate in the program may register for courses for the following semester. Information regarding undergraduate advising pre-registration appointments is sent out each semester to the department's undergraduate email list. If you are unsure if you should be receiving advising, please contact the Undergraduate Advisors at astro-ug@umd.edu. When students enter the major, they are assigned to one of the Undergraduate Advisors.

Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must contact astro-ug@umd.edu to meet with an Undergraduate Advisor to make appropriate plans.

If you are considering changing to or adding on the Astronomy major, please contact the Undergraduate Advisors at astro-ug@umd.edu with questions or to make an appointment.

For the Astronomy minor and Planetary Science minor, there is regular undergraduate advising is not mandatory. Students interested in the Astronomy minor should contact astro-ug@umd.edu. Students interested in the Planetary Sciences minor should contact Dr. Melissa Hayes-Gehrke (mhayesge@umd.edu) or Dr. John Merck (jmerck@umd.edu).

## OPPORTUNITIES

## Undergraduate Research Experiences

Undergraduates have many research opportunities both on and off campus. More information is available on the department website under Undergraduate Research (http://astro.umd.edu/undergrad/ugresearch/).

## Internships

Many undergraduate students do astronomy research internships at the NASA/Goddard Space Flight Center. See the department website under Undergraduate Research (http://astro.umd.edu/undergrad/ugresearch/).

## Honors Program

The Honors Program offers students of exceptional ability and interest in Astronomy opportunities for research participation. Honors students work with a faculty advisor on a research project for which academic

credit is earned. Certain graduate courses are open for credit toward the bachelor's degree. Students are accepted into the Honors Program by the Department's Honors Committee on the basis of grade point average or recommendation of faculty. Honors candidates enroll in ASTR399, complete a research project, write a thesis and do an oral presentation before a committee. Satisfactory grades lead to graduation With Honors (or High Honors) in Astronomy. Further information about the Honors Program can be obtained by calling the Department of Astronomy office at 301-405-3001.

# Student Societies and Professional Organizations

## AstroTerps

AstroTerps is a student club open to all undergraduates with an interest in astronomy. The club invites guest speakers and coordinates many outreach activities, field trips, and special events.

## ACE

ACE (Astronomy Community Engagement) is a student-led group within the University of Maryland Department of Astronomy. The group aims to facilitate community and access among intersecting groups in undergraduate and graduate students studying astronomy. Alongside broader community events, the group hosts spaces for these discussions where students do not need to be concerned about their well-being and where diverse challenges that scientists in the field face can be discussed. See the ACE webpage (http://ace.astro.umd.edu/) for details.

# Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# Awards and Recognition

For information about external and university awards which our undergraduate students have won, see the department's Fellowships and Prizes webpage (http://astro.umd.edu/undergrad/fellowships.html#PreviousWinners).

# Academic Programs and Departmental Facilities

The Department of Astronomy is a full partner in the 4.3m Lowell Discovery Telescope (LDT) (https://lowell.edu/research/telescopes-and-facilities/ldt/), one of the largest and most technologically advanced telescopes in the continental U.S. We have joined Caltech and other partners in the Zwicky Transient Facility (http://ptf.caltech.edu/ztf/), a time-domain survey for studying rare and exotic transient phenomena with first light at Palomar Observatory in 2017. The department has been involved with major space missions, such as NASA's Deep Impact, EPOXI, and Rosetta missions which have explored comets as well as the JAXA/NASA Hitomi mission. We are now involved in the JAXA/NASA XRISM mission and the NICER experiments on the International Space Station. Department members are frequent users of the Hubble Space Telescope, the Chandra X-Ray Telescope, the SOFIA airborne observatory, ALMA (large radio array in Chile), and many other facilities. Additionally, the department operates a small observatory (http://astro.umd.edu/openhouse/) on campus which has four fixed telescopes ranging in aperture from 20" to 7" and six portable 8" telescopes. This facility is used for undergraduate majors' classes and for small-scale research projects, as well as for an Open House Program for the public. The department operates a modern computer cluster (http://astro.umd.edu/rareas/ctc/#ctcfacilities) for computation-intensive science projects, and a visualization laboratory with a hyper-wall for state-of-the-art simulations and displays of large datasets. Opportunities are available for undergraduates to become involved in research with all of these facilities. Many of our students also conduct research and instrumentation projects with distinguished scientists at the nearby NASA Goddard Space Flight Center and other sites.

# Astronomy Major

**Program Director:** Melissa Hayes-Gehrke, Ph.D.

The Astronomy Department offers courses leading to a Bachelor of Science in Astronomy as well as a series of courses of general interest to non-majors. Astronomy majors are given a strong undergraduate preparation in Astronomy, Mathematics, and Physics. The degree program is designed to prepare students for positions in government and industry laboratories or for graduate work in Astronomy or related fields. Courses offered by this department may be found under the following acronym: ASTR.

# Program Objectives

The Department of Astronomy B.S. program educates majors toward achieving an understanding of modern astronomical concepts, applying physics and mathematics to astrophysical situations, and gaining experience in gathering and reducing data using astronomical instrumentation and computational tools. Completion of this program provides the opportunity for majors to acquire the knowledge and skills necessary for graduate school or employment after graduation.

# Program Learning Outcomes

1. Identify basic concepts from the many areas of astronomy, including motions in the sky, gravity, electromagnetic radiation, solar system, stars, and galaxies.
2. Develop mathematical skills, acquire physics knowledge, and practice applying these skills and knowledge in astrophysical situations.
3. Use astronomical telescopes/instruments and reduce astronomical data using modern computational methods.
4. Demonstrate advanced level knowledge in several different areas of astronomy.
5. Describe the current demographic composition of people working in the field of astronomy and how this affects its practice and presents barriers to broader inclusion.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Required Basic Astronomy Courses** | | |
| ASTR120 | Introductory Astrophysics - Solar System | 3 |
| ASTR121 | Introductory Astrophysics II - Stars and Beyond | 4 |
| ASTR310 | Observational Astronomy | 4 |
| ASTR320 | Theoretical Astrophysics | 3 |
| **Advanced Astronomy Courses** | | |
| Select any two 400 level Astronomy courses of the following: | | 6 |
| ASTR406 | Stellar Structure and Evolution | |

| | | |
|---|---|---|
| ASTR410 | Radio Astronomy | |
| ASTR415 | Computational Astrophysics | |
| ASTR421 | Galaxies | |
| ASTR422 | Cosmology | |
| ASTR430 | The Solar System | |
| ASTR435 | Astrophysics of Exoplanets | |
| ASTR450 | Orbital Dynamics | |
| ASTR480 | High Energy Astrophysics | |
| Optional Astronomy Seminars: | | |
| ASTR288 | Special Projects in Astronomy (ASTR288C-Astronomy Research Techniques) | |
| ASTR288 | Special Projects in Astronomy (ASTR288M-Current Events in Astronomy Research) | |
| ASTR288 | Special Projects in Astronomy (ASTR288I Introduction to the Astronomy Major) | |
| ASTR288 | Special Projects in Astronomy (ASTR288P-Introduction to Astronomical Programming) | |
| **Required Introductory Physics Courses** [1] | | |
| PHYS171 | Introductory Physics: Mechanics | 3 |
| PHYS265 | Introduction to Scientific Programming | 3 |
| PHYS272 | Introductory Physics: Fields | 3 |
| PHYS273 | Introductory Physics: Oscillations and Waves | 3 |
| PHYS275 | Experimental Physics I: Mechanics and Waves | 2 |
| PHYS276 | Experimental Physics II: Electricity and Magnetism | 2 |
| **Advanced Physics Courses** | | |
| PHYS313 | Electricity and Magnetism I | 4 |
| PHYS371 | Modern Physics | 3 |
| PHYS401 | Quantum Physics I | 4 |
| PHYS404 | Introduction to Statistical Thermodynamics | 3 |
| **Supporting Mathematics/Mathematical Methods Courses** | | |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| MATH241 | Calculus III | 4 |
| MATH243 | Introduction to Linear Algebra and Differential Equations | 4 |
| **Total Credits** | | **66** |

1 Also accepted with consent of advisor: PHYS161, PHYS165, PHYS260, PHYS261, PHYS270, PHYS271 (14 credits)

2 For students with experience with computer programming this course can be replaced by PHYS474 Computational Physics or ASTR415 Computational Astrophysics. If students complete ASTR415 for this requirement, it cannot be counted as an advanced astronomy course (400-level course) requirement.

3 Completion of both MATH246 and either MATH240 or MATH461 will be accepted in place of PHYS274.

***Grades in all of the above required courses must be "C-" or better.***

## GRADUATION PLANS

Click here (https://cmns.umd.edu/undergraduate/advising-academic-planning/academic-planning/four-year-plans/four-year-plans-gened/) for roadmaps for graduation plans in the College of Computer, Mathematical, and Natural Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Astronomy Minor

1208 Physical Sciences Complex
Phone: 301-405-3001
http://astro.umd.edu

**Program Director:** Melissa Hayes-Gehrke, Ph.D.

This minor is designed to provide students with a background in astronomy that focuses on answering the fundamental questions about our origins that humans have pondered over the ages. Building on an introductory survey of astronomy, students will explore topics in planetary science such as asteroid collisions with the Earth or the science of extrasolar planets as viewed through the lens of science fiction. The upper level requirements will offer students the choice of focusing on the origin and evolution of stars, astronomy in the media, our Solar System, our universe, and life elsewhere in the universe.

A minor in Astronomy may be earned by completing the following with grades of "C-" or better. An appointment must be made to register for the minor before final 30 credits are taken. Please visit http://astro.umd.edu/undergrad/minor (http://astro.umd.edu/undergrad/minor/) for complete rules and procedures and contact the department with any questions.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| Select one of the following: [1] | | 3-4 |
| ASTR100 | Introduction to Astronomy | |
| ASTR101 | General Astronomy | |
| Select one of the following: | | 3 |
| ASTR220 | Collisions in Space - The Threat of Asteroid Impacts | |
| ASTR230 | The Science and Fiction of Planetary Systems | |
| Select three of the following: | | 9-10 |
| ASTR300 | Stars and Stellar Systems | |
| ASTR305 | | |
| ASTR315 | Astronomy in Practice | |
| ASTR330 | Solar System Astronomy | |
| ASTR340 | Origin of the Universe | |
| ASTR350 | Black Holes | |
| ASTR380 | Life in the Universe - Astrobiology | |
| ASTR498 | Special Problems in Astronomy | |
| CRSxx | Or a course approved by the department | |
| **Total Credits** | | **15-17** |

1 or equivalent transfer course(s)

# Planetary Sciences Minor (ASTR)

**Astronomy (ASTR)**
1208 Physical Sciences Complex

Phone: 301-405-3001
http://astro.umd.edu

**Geology (GEOL)**
1115 Geology Building
Phone: 301-405-4365
http://geol.umd.edu

**ASTR Program Director:** Melissa Hayes-Gehrke, Ph.D.
**GEOL Program Director:** John Merck, Ph.D.

The minor in Planetary Sciences will provide students with a broad understanding of the application of the methods of astronomy and geology to the study of the Solar System, and develop the students' appreciation of how issues in the study of planets connect with larger issues in those sciences. It is intended for all students with an interest in the study of the Solar System, be it professional or avocational. In addition to Astronomy and Geology majors, it dovetails with the professional goals of Environmental Science and Policy, Environmental Science and Technology, Chemistry, Physics, Physical Sciences, and Secondary Education majors.

Building on a three-course base of fundamental knowledge of astronomy, geology and an introduction to the Solar System, the program is completed by three advanced courses addressing specific topics adding depth to the student's knowledge of planetary astronomy and to the geologic tools of the planetary scientist. Students are required to sample from optional courses from both departments. The Joint Minor in Planetary Sciences does not require significant prerequisite knowledge, however some optional courses may require prerequisites of 100-level courses in chemistry, mathematics, or geology.

An appointment must be made to register for the minor before final 30 credits are taken. Please visit http://astro.umd.edu/undergrad/minorPlanSci (http://astro.umd.edu/undergrad/minorPlanSci/) for complete rules and procedures and contact the department with any questions.

## REQUIREMENTS

The minor will require 19-22 credits:

| Course | Title | Credits |
|---|---|---|
| **Required** | | |
| Select one of the following: [1] | | 3-4 |
| ASTR100 | Introduction to Astronomy | |
| ASTR101 | General Astronomy | |
| ASTR120 | Introductory Astrophysics - Solar System | |
| Select one of the following: | | 4 |
| GEOL100 & GEOL110 | Physical Geology and Physical Geology Laboratory | |
| GEOL120 & GEOL110 | Environmental Geology and Physical Geology Laboratory | |
| Select one of the following: | | 3 |
| ASTR330 | Solar System Astronomy | |
| ASTR430 | The Solar System | |
| GEOL212 | Planetary Geology | |
| Select three from the following: [2] | | 9-11 |
| ASTR220 | Collisions in Space - The Threat of Asteroid Impacts | |
| ASTR230 | The Science and Fiction of Planetary Systems | |
| ASTR380 | Life in the Universe - Astrobiology | |
| ASTR498 | Special Problems in Astronomy | |
| GEOL322 | Mineralogy | |
| GEOL340 | Geomorphology | |
| GEOL412 | Geology of the Terrestrial Planets | |
| GEOL437 | Global Climate Change: Past and Present | |
| GEOL499 | Special Problems in Geology | |
| ASTR/GEOL | Another appropriate astronomy or geology course approved in advance by the Astronomy or Geology advisor | |
| **Total Credits** | | **19-22** |

1 Or equivalent transfer course(s).
2 At least one choice must be from Geology and one from Astronomy. At least six credits from this list and nine credits overall must be at the 300-400 level.

# Atmospheric and Oceanic Science

**College of Computer, Mathematical, & Natural Sciences**
3417 Atlantic Building
Phone: 301-405-5391
aosc-advise@umd.edu
http://aosc.umd.edu

The department is particularly strong in atmospheric chemistry and air pollution, mesoscale to global numerical weather prediction, data assimilation, earth sciences and climate, physical oceanography, remote sensing, and dynamics with predictability. These strengths are reinforced by strong collaborations leading to joint research topics with NASA Goddard Space Flight Center, Maryland Departments of the Environment and of National Resources, the National Centers for Environmental Prediction (NCEP) of the National Weather Service, the NOAA Satellite (NESDIS) and Air Research Laboratories, all of which are located near the campus. Interdisciplinary programs with the Departments of Geology, Physics, Chemistry, Mathematics, Computer Sciences, Geography, the Marine-Estuarine Environmental Science, and Hydrology (within the School of Engineering) are also encouraged. The department has two members of the National Academy of Engineering and a member of the Academia Europaea.

## PROGRAMS

### Major

- Atmospheric and Oceanic Science Major (p. 315)

### Minors

- Atmospheric Chemistry Minor (p. 317)
- Atmospheric Sciences Minor (p. 317)
- Meteorology Minor (p. 318)

## ADVISING

It is mandatory for students in this program to meet with their academic advisor at least once per semester. Students will be assigned an academic advisor at new student orientation. Students who need to make an advising appointment should check TerpEngage for available appointments and drop-in hours. Other questions about advising or

adding any major or minor programs in AOSC can be directed to aosc-advise@umd.edu.

# OPPORTUNITIES

## Undergraduate Research Experiences

Many of our present undergraduate students have sought out and obtained productive internships in the Washington, D.C. area. These experiences (whether at NASA, NOAA, EPA, DOE or other federal or state agencies) are important both to our students' academic careers, as they provide context and generate ideas for independent research projects, and to their professional careers. In light of this importance, we have made an undergraduate senior thesis mandatory for all AOSC majors (see the courses AOSC493 and AOSC498). Our majors have the opportunity and are required to perform research! Non-majors may also participate in undergraduate research through AOSC499 or informally with individual professors and research scientists.

## Internships

Internships are an integral part of our program. All AOSC majors must complete and defend a full year research project during their senior year. Many opportunities are available at nearby research facilities such as NASA and NOAA.

## Honors Program

Each year, the AOSC Honors Program Committee reviews the academic records of AOSC majors. Students with a minimum 3.00 overall GPA and a minimum 3.30 major GPA will be added to the AOSC Honors List. For students on the AOSC Honors list certain graduate courses are open. To receive a citation of "with honors in atmospheric and oceanic science" the student must:

- Have earned a 3.00 or higher overall GPA and a 3.30 or higher GPA for all AOSC major required courses at graduation time
- Pass two approved AOSC graduate level classes with a grade of "B-" or better.
- Pass an Honors Oral Examination in their senior year.

To receive a citation of "with high honors in atmospheric and oceanic science" the student must complete the requirements for honors and receive a high pass for the thesis.

## Student Societies and Professional Organizations

The undergraduate program features an active student chapter of the American Meteorological Society.

## Scholarships and Financial Assistance

The department maintains awards for highly qualified undergraduate students. Please contact the department for details.

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Academic Programs and Departmental Facilities

Our department hosts an undergraduate major, three undergraduate minors, a professional masters and a full academic graduate program. The overlap between the professional masters program and the undergraduate program allows incoming freshman to earn both a bachelors and a masters degree in five years. We believe that research is an essential part of an undergraduate experience, and require all our majors to complete a senior thesis as part of their education!

We maintain computer labs for the use of our students in addition to the computer facilities provided by the university, with all major operating systems represented. Several of our research groups also have their own compute clusters, and those who need to access still more powerful computing resources can use NASA, NOAA and NCAR machines. The department hosts several large disk arrays for local data storage and general-use compute clusters for student use in classes and on small projects. All are accessible from our laboratories. We are in the process of completing and advance forecasting/data visualization lab for students to prepare forecasts, analyze data, and general classroom use.

We have a state of the art rooftop meteorological laboratory, which currently houses standard meteorological instruments and more than a dozen atmospheric chemistry measurements. This facility also frequently hosts instruments from nearby research laboratories such as NASA and NOAA. A short distance away, our department runs an atmospheric chemistry, precipitation and deposition field site at the Beltsville Agricultural Research Center.

Closely affiliated departments and programs, the Earth System Science Interdisciplinary Center (ESSIC) and the Joint Global Change Research Institute (JGCRI) are in the MSquare development immediately east of the main campus, and numerous world-class federal facilities are a short walk or drive away. The new NOAA Center for Weather and Climate Prediction with 700 NOAA researchers is housed next to ESSIC and JGCRI in the MSquare development just east of US Route 1. NASA's Goddard Space Flight Center is five miles down the road, and the National Institute of Standards and Technology, Naval Research Labs, Environmental Protection Agency, and many more are also located in the Washington, D.C. Metro area. All have hired our graduates and host frequent collaborations with our faculty and students.

# Atmospheric and Oceanic Science Major

**Program Director:** A. Jones, Ph.D.

Fundamental concepts from mathematics, chemistry, physics, and computer science are applied to understand the basic principles that control our weather and climate, from extreme events like tornadoes to the millennial changes of ice ages and the results of human modification of our environment. Coursework in the first two years emphasizes mastery of these fundamentals. Coursework in the last two years provides a comprehensive survey of atmospheric and oceanic science, while specialty courses and guided research allow the student to develop expertise in an area of concentration. The Department has particular strengths in computer modeling and remote sensing of the atmosphere and ocean, atmospheric chemistry, and climate studies. In addition to the Department, nearby research laboratories such as the NOAA National Centers for Environmental Prediction and NASA Goddard Space Flight

Center offer the student many research opportunities. Courses offered by this department may be found under the following acronyms: AOSC

# Admission to the Major

The major in Atmospheric and Oceanic Science is not a limited enrollment program (LEP), so there are no formal requirements for entry into the major. Successful students generally have a solid background, earning good grades in mathematics, physics and chemistry.

# Program Objectives

The Atmospheric and Oceanic Science B.S. program seeks to educate majors in the basic principles that control our weather and the interactions between atmosphere and ocean that regulate Earth's climate. Students will be provided with practical experience as researchers and creators of knowledge, and equipped with the requirements for a full range of careers in Atmospheric and Oceanic Science, as well as for related areas in secondary education, graduate school, industry, and public service.

# Program Learning Outcomes

1. Design and Execution of Research: Upon completion of the program students will be able to create, synthesize, or apply knowledge to relevant scientific problems in atmospheric and oceanic science using critical and analytical thinking and employ diagnostic, prognostic, and technological tools to evaluate physical processes across a multitude of scales.
2. Professional Communication: Upon completion of the program students will be able to effectively and professionally communicate scientific information in oral and written form at an appropriate level for the particular audience. This will be accomplished through written manuscripts, oral presentations, and poster presentations.
3. Deep Knowledge: Upon completion of the program students will be able to summarize scientific literature and nuanced concepts, demonstrating in-depth knowledge in a specific subfield of their choice, corresponding to upper level electives, in atmospheric and oceanic sciences
4. Broad Knowledge: Upon completion of the program students will be able to solve problems and explain fundamental physics governing the atmosphere, ocean, and coupled climate system. This is accomplished through the core required courses and electives.
5. Diversity, Equity, and Inclusion: Upon completion of the program students will be able to identify implicit bias within themselves as it relates to working with diverse peers and resolve interpersonal challenges across diverse student teams to successfully complete team based assignments and projects with a high degree of integrity, ethics, and in keeping with professional codes of conduct.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Requirements for the Major** | | |
| AOSC200 | Weather and Climate [1] | 3 |
| AOSC201 | Weather and Climate Laboratory | 1 |
| AOSC431 | Atmospheric Thermodynamics | 3 |
| AOSC432 | Dynamics of the Atmosphere and Ocean | 3 |
| AOSC494 | Atmospheric and Oceanic Science Seminar | 1 |
| AOSC493 | Senior Research Project I | 3 |
| AOSC498 | Senior Research Project II | 3 |
| AOSC358 | Special Topics in Atmospheric and Oceanic Science (AOSC358L-Computing and Data Analysis: Deciphering Climate Change Clues) | 3 |
| AOSC4XX | Upper Level Major Electives [2] | 6 |
| Select four of the following: | | 12 |
| AOSC400 | Physical Meteorology | |
| AOSC401 | Climate Dynamics and Earth System Science | |
| AOSC424 | Remote Sensing of the Atmosphere and Ocean | |
| AOSC433 | Atmospheric Chemistry and Climate | |
| AOSC470 | Synoptic Meteorology | |
| CHEM135 | General Chemistry for Engineers | 3 |
| CHEM136 | General Chemistry Laboratory for Engineers | 1 |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| MATH241 | Calculus III [3] | 4 |
| MATH246 | Differential Equations for Scientists and Engineers [3] | 3 |
| PHYS161 | General Physics: Mechanics and Particle Dynamics [4] | 3 |
| PHYS174 | Physics Laboratory Introduction [4] | 1 |
| PHYS260 | General Physics: Electricity, Magnetism and Thermodynamics [4] | 3 |
| PHYS261 | General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) [4] | 1 |
| PHYS270 | General Physics: Waves, Optics, Relativity and Modern Physics [4] | 3 |
| PHYS271 | General Physics: Electrodynamics, Light, Relativity and Modern Physics (Laboratory) [4] | 1 |
| **Total Credits** | | **69** |

1. Or another AOSC course at the 200-level
2. For a detailed list, see our website for AOSC majors
3. The sequence for math majors may also be used: MATH340, MATH341
4. The sequence for physics majors may also be used: PHYS171, PHYS174, PHYS272, PHYS275, PHYS273

The program requires that a grade of "C-" or better be obtained in all courses required for the major. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.0) cumulative grade point average across all courses used to satisfy major degree requirements.

Detailed information on the major can be obtained by consulting our major website and making an appointment with an AOSC advisor.

# GRADUATION PLANS

Click here (https://cmns.umd.edu/undergraduate/advising-academic-planning/academic-planning/four-year-plans/four-year-plans-gened/) for roadmaps for graduation plans in the College of Computer, Mathematical, and Natural Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

## ADVISING

It is mandatory for students in this program to meet with their academic advisor at least once per semester. Students will be assigned an academic advisor at new student orientation. Students who need to make an advising appointment should check TerpEngage for available appointments and drop-in hours. Other questions about advising or adding the AOSC major can be directed to aosc-advise@umd.edu.

# Atmospheric Chemistry Minor

**Atmospheric and Oceanic Science (AOSC)**
3417 Computer and Space Sciences Building
Phone: 301-405-5391
http://aosc.umd.edu

**Program Directors:** T. Canty, Ph.D. and A. Jones, Ph.D.

This minor will provide the students with a general background in meteorology as offered by the lower level required courses, and a background on issues in atmospheric chemistry. This minor track is intended for students who might pursue careers where background in atmospheric chemistry is needed, such as air pollution, atmospheric chemistry, and environmental issues. It is aimed at students that might consider graduate work in atmospheric chemistry, or prepare them for a very favorable job market in the Washington area, where a background in meteorology can be an important asset. Students attempting this minor will need a strong background in mathematics, physics and chemistry at the level of MATH240 or MATH461, PHYS270 and PHYS271, CHEM481 (preferred), CHEM135 or CHEM131, which are prerequisites for the required courses. Students interested in taking this minor program should contact the Undergraduate Advisor in the Department of Atmospheric and Oceanic Science. This minor is not open to students who major in Atmospheric and Oceanic Sciences.

## REQUIREMENTS

A total of 15 credits is required. All courses presented for the minor must be passed with a grade of "C-" or better.

| Course | Title | Credits |
|---|---|---|
| Select two electives from the following: | | 6 |
| AOSC123 | Causes and Consequences of Global Change | |
| AOSC200 | Weather and Climate | |
| Any AOSC 400 level course offered below as elective | | |
| AOSC431 | Atmospheric Thermodynamics | 3 |
| AOSC433 | Atmospheric Chemistry and Climate | 3 |
| AOSC434 | Air Pollution and Environmental Justice | 3 |
| Select one of the following electives: | | 3 |
| CHEM474 | | |
| GEOL471 | | |
| Other 400 level courses offered in the Department of Atmospheric and Oceanic Science on a regular basis, or from a list of non-permanent electives that will be offered by Research Scientists, regular faculty from Atmospheric and Oceanic Science, or members of the Earth System Science Interdisciplinary Center (ESSIC) | | |
| Courses offered by the Departments of Geography and Geology such as: | | |
| GEOG472 | Remote Sensing: Digital Processing and Analysis | |
| GEOL437 | Global Climate Change: Past and Present | |
| GEOL452 | Watershed and Wetland Hydrology | |
| **Total Credits** | | **18** |

## ADVISING

Students are only required to meet with an advisor when ready to declare the minor. Students may meet with an advisor at any time by reaching out to aosc-advise@umd.edu. Other questions about advising or adding the Atmospheric Chemistry minor can also be directed to aosc-advise@umd.edu.

# Atmospheric Sciences Minor

**Atmospheric and Oceanic Science (AOSC)**
3417 Computer and Space Sciences Building
Phone: 301-405-5391
http://aosc.umd.edu

**Program Directors:** T. Canty, Ph.D. and A. Jones, Ph.D.

This minor will provide a general background in meteorology as offered by the lower level courses, and a solid background in atmospheric physics (AOSC431) and atmospheric dynamics (AOSC432), as offered by two required courses. It is aimed at non-majors who might consider graduate work in meteorology, or prepare them for the very favorable job market in the Washington, D.C. area, where a background in meteorology can be an important asset. Students attempting this minor will need a strong background in mathematics, physics and chemistry at the level of MATH240 or MATH461, PHYS270 and PHYS271; CHEM135 (preferred) or CHEM131, which are prerequisites for the required courses. Students interested in taking this minor program should contact the undergraduate advisor in the Department of Atmospheric and Oceanic Science for advising. This minor is not open to students who major in Atmospheric and Oceanic Sciences.

## REQUIREMENTS

This minor will require 15 credits. All courses presented for the minor must be passed with a grade of "C-" or better.

| Course | Title | Credits |
|---|---|---|
| Select two of the following electives: | | 6 |
| AOSC123 | Causes and Consequences of Global Change | |
| AOSC200 | Weather and Climate | |
| AOSC400 | Physical Meteorology | |
| The following two courses are required: | | |
| AOSC431 | Atmospheric Thermodynamics | 3 |
| AOSC432 | Dynamics of the Atmosphere and Ocean | 3 |
| One elective from: | | |
| Other 400 level courses offered in the Department of Atmospheric and Oceanic Science on a regular basis, or from a list of non-permanent electives that will be offered by research scientists, regular faculty from Atmospheric and Oceanic Science, or members of the Earth System Science Interdisciplinary Center (ESSIC) | | 3 |
| Courses offered by the Departments of Geology and Geographic Sciences, such as: | | |
| GEOL437 | Global Climate Change: Past and Present | |
| GEOL452 | Watershed and Wetland Hydrology | |

| | | |
|---|---|---|
| GEOG472 | Remote Sensing: Digital Processing and Analysis | |
| **Total Credits** | | **15** |

## ADVISING

Students are only required to meet with an advisor when ready to declare the minor. Students may meet with an advisor at any time by reaching out to aosc-advise@umd.edu. Other questions about advising or adding the Atmospheric Sciences minor can also be directed to aosc-advise@umd.edu.

# Meteorology Minor

**Atmospheric and Oceanic Science (AOSC)**
3417 Computer and Space Sciences Building
Phone: 301-405-5391
http://aosc.umd.edu

**Program Directors:** T. Canty, Ph.D. and A. Jones, Ph.D.

This minor will provide the students with a general background in meteorology as offered by the lower level courses, a broader background on a wide range of sub-fields in meteorology, and on current issues in climate research, as provided by the two required courses. This minor is aimed at students who wish to be informed about this field, who may not intend to pursue graduate work in this field, but who might pursue careers where a background in meteorology is important, such as environmental policy, government, and industry. This minor is not open to students who major in Atmospheric and Oceanic Sciences.

## REQUIREMENTS

A total of 15 credits is required. All courses presented for the minor must be passed with a grade of "C-" or better.

| Course | Title | Credits |
|---|---|---|
| Select two of the following electives: | | 6 |
| AOSC123 | Causes and Consequences of Global Change | |
| AOSC200 | Weather and Climate | |
| Any other 400 level courses offered below as electives | | |
| Two required courses: | | |
| AOSC400 | Physical Meteorology | 3 |
| AOSC401 | Climate Dynamics and Earth System Science | 3 |
| One additional elective from any 400 level courses offered in the Department of Atmospheric and Oceanic Science on a regular basis, or from a list of non-permanent electives that will be offered by research scientists, regular faculty from Atmospheric and Oceanic Science, or members of the Earth System Science Interdisciplinary Center (ESSIC) | | 3 |
| Courses offered by the Departments of Geology and Geographic Sciences, such as: | | |
| GEOL437 | Global Climate Change: Past and Present | |
| GEOL452 | Watershed and Wetland Hydrology | |
| GEOG472 | Remote Sensing: Digital Processing and Analysis | |
| **Total Credits** | | **15** |

## ADVISING

Students are only required to meet with an advisor when ready to declare the minor. Students may meet with an advisor at any time by reaching out to aosc-advise@umd.edu. Other questions about advising or adding the Meteorology minor can also be directed to aosc-advise@umd.edu.

# Biological Sciences Major

**Biological Sciences (BSCI) Program**
1200C Biology-Psychology Building
Phone: 301-405-6892
estaylor@umd.edu
http://bsci.umd.edu

The Biological Sciences major exposes students to the modern experimental disciplines within biology and prepares them for diverse careers in health care, research, policy, teaching, and academia. Upper level courses are organized into specialization areas, aligned with the major research areas in modern biology ranging from molecular and cellular studies to ecosystem studies.

Students in the Biological Sciences major will have the following academic components to their curriculum.

- **Basic program and supporting Courses: 47 - 48 credits**
- **Advanced Program in one of the following specialization area: 27 credits**
  - **Cell Biology and Genetics**
  - **General Biology**
  - **Microbiology**
  - **Ecology and Evolution**
  - **Physiology and Neurobiology**
  - **Individualized Studies requires permission of Assistant Dean**
- **General Education requirements: 27 credits**
- **Electives: 18 - 19 credits**

**Total credits required to graduate: 120**

The Biological Sciences major is jointly offered by the Departments of **Biology**, **Cell Biology & Molecular Genetics**, and **Entomology** in the College of Computer, Mathematical, and Natural Sciences. The central Biological Sciences Program office in the Biology-Psychology Building, Room 1200, is staffed by:

- **Director:** Dr. Reid Compton, compton@umd.edu
- **Office Program Manager:** Ms. Elaine Shaw-Taylor, estaylor@umd.edu
- **Assistant Director for Advising and Administration:** Ms. Jennie Gouker, jgouker@umd.edu
- **Assistant Director for Curriculum and Instruction:** Dr. Danielle Adams, dadams37@umd.edu

Departmental contacts for Biological Sciences are:

- **Biology Undergraduate Director:** Dr. Sara Lombardi, saral@umd.edu
  - BSCI Specializations: PHNB, ECEV
- **Cell Biology & Molecular Genetics** Undergraduate Director: Dr. David Straney, straney@umd.edu
  - BSCI Specializations: CEBG, GENB (N–Z), MICB
- **Entomology Undergraduate Director:** Dr. David Hawthorne, djh@umd.edu
  - BSCI Specialization: GENB (A–M)
  - Entomology Minor

# Biological Sciences Program Specializations

All Biological Sciences majors complete a common sequence of introductory and supporting courses called the basic program. In addition, students must complete an advanced program within one of the following specialization areas:

- Cell Biology & Genetics (CEBG)
- Ecology & Evolution (ECEV)
- General Biology (GENB)
- Microbiology (MICB)
- Physiology & Neurobiology (PHNB)
- Individualized Studies (BIVS)

A complete list of specialization area requirements can be found on our website, http://bsci.umd.edu. Note that the Individualized Studies specialization (BIVS) requires the permission of the Assistant Dean of Undergraduate Academic Programs and involves an approved proposal to do coursework in the college and in other disciplines. Further questions about Biological Sciences can be directed to the Undergraduate Academic Program Office at 301-405-6892.

# Biological Sciences at the University of Maryland at Shady Grove

The Biological Sciences Program at the University of Maryland offers a degree program at Universities at Shady Grove. The Biological Sciences Program at Shady Grove offers the Advanced Program courses normally taken in the junior and senior years. More information is available at: http://shadygrove.umd.edu/academics/degree-programs/bs-biological-sciences/.

# Admission to the Major

The Biological Sciences major is a Limited Enrollment Program. Please see the admission requirements and procedures at: http://lep.umd.edu.

# Placement in Courses

Enrollment in BSCI160 & BSCI161 and BSCI170 & BSCI171 requires the eligibility to take MATH120 or MATH140, through direct placement by the Math Placement Exam or completion of MATH113 or MATH115. Note that students who are ready to take MATH135 will have eligibility for MATH120 and thus are eligible to enroll in BSCI160 & BSCI161 and BSCI170 & BSCI171.

Students who earn Advanced Placement or International Baccalaureate Placement credit, which grants equivalency for BSCI160 & BSCI161 and/or BSCI170 & BSCI171 are encouraged not to repeat these courses at UMD but can continue to courses for which BSCI160 & BSCI161 and/or BSCI170 & BSCI171 satisfy prerequisite requirements.

# Program Learning Outcomes

1. Students should have mastered the critical knowledge at each level in the curriculum that is necessary to move on to the next level in the curriculum.
2. Students should demonstrate an ability to use and apply quantitative methods, especially: interpretation of graphical or tabular data; expression of physical, chemical, or biological process in mathematical form; solving equations to determine the value of physical, chemical, or biological variables.
3. Students at the lower level should demonstrate an ability to carry out key experimental techniques used in the chemical and life sciences disciplines.
4. Students at the lower level should have a basic understanding of how to express questions as a hypothesis, how to design a test of a hypothesis, and how to gather and analyze simple data.
5. Students at the upper level should be able to integrate and apply a relevant body of basic knowledge to the evaluation of existing scientific studies and to design studies to test specific hypotheses that includes design elements typically found in a specific field of the chemical and life sciences.
6. Students should effectively communicate in writing the processes of science and the results of scientific inquiry.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Basic Program and supporting courses in Biological Sciences** | | |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | 4 |
| BSCI160 & BSCI161 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab | 4 |
| BSCI207 | Principles of Biology III - Organismal Biology | 3 |
| BSCI222 | Principles of Genetics | 4 |
| UNIV100 | The Student in the University [1] | 1 |
| **Supporting Courses** [2] | | |
| MATH135 & MATH136 | Discrete Mathematics for Life Sciences and Calculus for Life Sciences | 8 |
| or | | |
| MATH140 & MATH141 | Calculus I and Calculus II | 8 |
| Or | | |
| MATH140 & MATH135 | Calculus I and Discrete Mathematics for Life Sciences | 8 |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | 4 |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | 4 |
| CHEM241 & CHEM242 | Organic Chemistry II and Organic Chemistry Laboratory II | 4 |
| CHEM271 & CHEM272 | General Chemistry and Energetics and General Bioanalytical Chemistry Laboratory | 4 |
| PHYS131 or PHYS141 | Fundamentals of Physics for Life Sciences I Principles of Physics | 4 |
| PHYS132 or PHYS142 | Fundamentals of Physics for Life Sciences II Principles of Physics | 4 |
| Please see below for details on the Advanced Program requirements for each specialization area. | | |

[1] Al students who matriculate at UMD as Freshman Biological Sciences majors must take UNIV100 or another approved Freshman Seminar course. See your advisor for details.

[2] MATH140 and MATH141 taken together will fulfill the Mathematics Supporting Courses requirement; however, MATH135 and MATH136 were designed specifically for Biological Sciences majors. Students

who enter the Biological Sciences major after satisfactorily completing MATH140 should take MATH135 instead of MATH141.

# Advanced Program Requirements

All Biological Sciences majors must complete an Advanced Program within one of the specialization areas described below. Students must complete a minimum of 27 credits of Advanced Program study.

For all specialization areas:

- At least two courses designated as lab at the 300 or 400 level must be taken as part of the Advanced Program.
  - Stand alone lab courses require a C- or better in the pre / co-requisite lecture to count as the upper level Lab requirement
- Independent study or research credits, including H and L versions, are acceptable up to a maximum of 3 credits overall in the Advanced Program.
- Multiple semesters in research courses can possibly count for one of the two required lab courses. See your advisor for more details.
- One credit of Departmental Honors Seminar can count toward the Advanced Program major credits. Additional Departmental Honors Seminar credits can count as electives toward the 120 credits required for graduation.
- Special topics courses are approved for specific specialization areas. See testudo.umd.edu (https://www.testudo.umd.edu/) to determine if a particular special topics course is approved for your specialization area.
- All specialization areas except General Biology have an Enrichment category. Enrichment allows students to include a maximum of 3 credits from any 300-level or 400-level BSCI, CHEM, or BCHM course in their Advanced Program. Courses from other departments can be used with permission of advisor. Courses listed in the Advanced Program can be used if they are not used to satisfy any specific Advance program category. Courses counted as Enrichment do not satisfy the requirement to take two 300- or 400-level laboratory courses.

# Cell Biology & Genetics 0404A

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | **16** |
| BCHM461 | Biochemistry I | 3 |
| BCHM462 | Biochemistry II | 3 |
| BSCI330 | Cell Biology and Physiology (Lab) | 4 |
| BSCI410 | Molecular Genetics | 3 |
| BSCI420 | Cell Biology Lectures | 3 |
| **CEBG Area courses. One course from the Cell Biology group and one course from the Genetics group must be taken. Other credits can be taken from any group.** | | **8** |
| **Cell Biology Courses** | | |
| BSCI353 | Principles of Neuroscience | 3 |
| BSCI404 | Cell Biology from a Biophysical Perspective | 3 |
| BSCI406 | Membranes and Biological Interfaces | 3 |
| BSCI417 | Microbial Pathogenesis [1] | 3 |
| BSCI422 | Principles of Immunology [1] | 3 |
| BSCI423 | Immunology Laboratory [1] | 2 |
| BSCI430 | Developmental Biology | 3 |
| BSCI432 | Systems View of Cell Biology | 3 |
| BSCI433 | Biology of Cancer | 3 |
| BSCI442 | Plant Physiology (Lab) | 4 |
| BSCI443 | Microbial Physiology [1] | 3 |
| BSCI454 | Neurobiology Laboratory [3] | 1 |
| **Genetics Courses** | | |
| BSCI402 | | 3 |
| BSCI405 | Population and Evolutionary Genetics (Lab) | 3 |
| BSCI406 | Membranes and Biological Interfaces | 3 |
| BSCI407 | Behavioral Genetics | 3 |
| BSCI411 | Bioinformatics and Integrated Genomics (Lab) | 4 |
| BSCI412 | Microbial Genetics (Lab) [1] | 4 |
| BSCI414 | Recombinant DNA Laboratory | 3 |
| BSCI415 | Molecular Genetics Laboratory | 3 |
| BSCI416 | Human Genetics | 3 |
| BCHM465 | Biochemistry III | 3 |
| **Additional CEBG Courses** | | |
| BSCI223 | General Microbiology [2] | 4 |
| BSCI283 | Principles of Microbiology [2] | 4 |
| BSCI374 | Mathematical Modeling in Biology [3] | 4 |
| BSCI425 | Advanced Cell Biology Lab Practices | 2 |
| BSCI427 | | 2 |
| BSCI437 | General Virology | 3 |
| BCHM464 | Biochemistry Laboratory | 3 |
| BIOM301 | Introduction to Biometrics [4] | 3 |
| STAT400 | Applied Probability and Statistics I [4] | 3 |
| STAT464 | Introduction to Biostatistics [4] | 3 |
| Special Topics Courses | | |
| BSCI328 | Special Topics in Entomology | 1-4 |
| BSCI338 | Special Topics in Biology | 1-4 |
| BSCI339 | Selected Topics in Biology | 1-4 |
| BSCI348 | Special Topics in Cell Biology and Molecular Genetics | 1-4 |
| Departmental Honors Seminar | | |
| BSCI378H | Cell Biology and Molecular Genetics Department Honors Seminar | 1 |
| BSCI398H | Biology Department Honors Seminar | 1 |
| **Enrichment** | | **3** |
| Minimum 3 credits from any 300-level or 400-level BSCI, CHEM, or BCHM course. | | |

1 BSCI223/283 is a pre-requisite for these upper level courses.
2 Credit will be given for either BSCI223 OR BSCI283. Credit cannot be granted for both courses. BSCI223/283 may count in the CEBG Area credits but NOT as an upper level lab.
3 Formerly BSCI474, cross-listed as HLSC374. Credit will be given for either BSCI374, HLSC374 or BSCI474.
4 Only one of these statistics courses will count for the CEBG Area courses.

# Ecology & Evolution 0404B

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | **10** |
| BSCI361 | Principles of Ecology | 4 |

| | | |
|---|---|---|
| BSCI370 | Principles of Evolution | 3 |
| Select one of the following Statistics Courses: | | 3 |
| BIOM301 | Introduction to Biometrics | 3 |
| STAT400 | Applied Probability and Statistics I | 3 |
| STAT464 | Introduction to Biostatistics | 3 |
| **Ecology and Evolution Area Courses.** | | **14** |
| 300-Level Courses | | |
| BSCI330 | Cell Biology and Physiology (Lab) | 4 |
| BSCI333 | Principles of Paleontology (Lab) | 4 |
| BSCI334 | Mammalogy | 3 |
| BSCI335 | Mammalogy Laboratory | 1 |
| BSCI337 | Biology of Insects (Lab) | 4 |
| BSCI360 | Principles of Animal Behavior | 3 |
| BSCI363 | The Biology of Conservation and Extinction | 3 |
| BSCI364 | Conservation Biology Lab | 1 |
| BSCI373 | Natural History of the Chesapeake Bay | 3 |
| BSCI374 | Mathematical Modeling in Biology (Lab) [1] | 4 |
| BSCI392 | Biology of Extinct Animals | 3 |
| BSCI393 | Biology of Extinct Animals Laboratory | 1 |
| 400-Level Courses. At least two 400-level courses must be taken. | | |
| BSCI401 | Animal Communication | 3 |
| BSCI403 | Biology of Vision | 3 |
| BSCI405 | Population and Evolutionary Genetics (Lab) | 3 |
| BSCI407 | Behavioral Genetics | 3 |
| BSCI410 | Molecular Genetics | 3 |
| BSCI430 | Developmental Biology | 3 |
| BSCI460 | Plant Ecology [2] | 3 |
| BSCI462 | Population Ecology | 3 |
| BSCI464 | Microbial Ecology | 3 |
| BSCI465 | | 3 |
| BSCI467 | Freshwater Biology (Lab) | 4 |
| BSCI471 | Molecular Evolution | 3 |
| BSCI473 | Marine Ecology | 3 |
| BSCI475 | Sexual Selection in Nature | 3 |
| BSCI480 | Arthropod Form and Function (Lab) | 4 |
| BSCI481 | Insect Diversity and Classification (Lab) | 4 |
| BSCI483 | Insects, Pathogens, and Public Health | 3 |
| BSCI494 | Animal-Plant Interactions | 3 |
| Special Topics Courses | | |
| BSCI328 | Special Topics in Entomology | 1-4 |
| BSCI338 | Special Topics in Biology | 1-4 |
| BSCI339 | Selected Topics in Biology | 1-4 |
| BSCI348 | Special Topics in Cell Biology and Molecular Genetics | 1-4 |
| Department Honors Seminar | | |
| BSCI378H | Cell Biology and Molecular Genetics Department Honors Seminar | 1 |
| BSCI398H | Biology Department Honors Seminar | 1 |
| **Enrichment** | | **3** |
| Minimum 3 credits from any 300-level or 400-level BSCI, CHEM, or BCHM course. | | |

[1] Formerly BSCI474, cross-listed as HLSC374. Credit will be given for either BSCI374, HLSC374 or BSCI474.

[2] BSCI460 and BSCI461 count as one required 400-level course. They do not satisfy the two 400-level courses requirement alone.

# General Biology 0404C

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| Biochemistry | | 3 |
| BCHM461 | Biochemistry I | 3 |
| or BCHM463 | Biochemistry of Physiology | |
| Select one of the following Quantitative Courses: | | 3-4 |
| BIOM301 | Introduction to Biometrics | 3 |
| BSCI374 | Mathematical Modeling in Biology (Lab) [1] | 4 |
| STAT400 | Applied Probability and Statistics I | 3 |
| STAT464 | Introduction to Biostatistics | 3 |
| MATH240 | Introduction to Linear Algebra | 4 |
| **General Biology Area Courses. At least one course from each area: Genetics & Evolution, Cell Biology, Development, & Physiology, and Ecology, Behavior, & Organismal.** | | **20-21** |
| **Genetics and Evolution** | | |
| BCHM465 | Biochemistry III | 3 |
| BSCI370 | Principles of Evolution | 3 |
| BSCI402 | | 3 |
| BSCI405 | Population and Evolutionary Genetics (Lab) | 3 |
| BSCI407 | Behavioral Genetics | 3 |
| BSCI410 | Molecular Genetics | 3 |
| BSCI411 | Bioinformatics and Integrated Genomics (Lab) | 4 |
| BSCI412 | Microbial Genetics (Lab) | 4 |
| BSCI414 | Recombinant DNA Laboratory | 3 |
| BSCI415 | Molecular Genetics Laboratory | 3 |
| BSCI416 | Human Genetics | 3 |
| BSCI471 | Molecular Evolution | 3 |
| **Cell Biology, Development, and Physiology** | | |
| BCHM462 | Biochemistry II | 3 |
| BCHM464 | Biochemistry Laboratory | 3 |
| BSCI330 | Cell Biology and Physiology (Lab) | 4 |
| BSCI342 | Biology of Reproduction | 3 |
| BSCI348 | Special Topics in Cell Biology and Molecular Genetics (BSCI348C: Cell Biology Lab) | 1-4 |
| BSCI353 | Principles of Neuroscience | 3 |
| BSCI404 | Cell Biology from a Biophysical Perspective | 3 |
| BSCI406 | Membranes and Biological Interfaces | 3 |
| BSCI417 | Microbial Pathogenesis | 3 |
| BSCI420 | Cell Biology Lectures | 3 |
| BSCI422 | Principles of Immunology | 3 |
| BSCI423 | Immunology Laboratory (Lab) | 2 |
| BSCI424 | Pathogenic Microbiology (Lab) | 4 |
| BSCI425 | Advanced Cell Biology Lab Practices (Lab) | 2 |
| BSCI413 | Recombinant DNA | 3 |
| BSCI430 | Developmental Biology | 3 |
| BSCI432 | Systems View of Cell Biology | 3 |

| | | |
|---|---|---|
| BSCI433 | Biology of Cancer | 3 |
| BSCI437 | General Virology | 3 |
| BSCI442 | Plant Physiology (Lab) | 4 |
| BSCI443 | Microbial Physiology | 3 |
| BSCI446 | Neural Systems | 3 |
| BSCI447 | General Endocrinology | 3 |
| BSCI450 | Mammalian Systems Physiology | 3 |
| BSCI451 | Mammalian Systems Physiology Laboratory | 2 |
| BSCI452 | Diseases of the Nervous System | 3 |
| BSCI454 | Neurobiology Laboratory (Lab) | 1 |
| **Ecology, Behavior, and Organismal** | | |
| BSCI333 | Principles of Paleontology (Lab) | 4 |
| BSCI334 | Mammalogy | 3 |
| BSCI335 | Mammalogy Laboratory | 1 |
| BSCI337 | Biology of Insects (Lab) | 4 |
| BSCI360 | Principles of Animal Behavior | 3 |
| BSCI361 | Principles of Ecology | 4 |
| BSCI363 | The Biology of Conservation and Extinction | 3 |
| BSCI364 | Conservation Biology Lab (Lab) | 1 |
| BSCI373 | Natural History of the Chesapeake Bay | 3 |
| BSCI392 | Biology of Extinct Animals | 3 |
| BSCI393 | Biology of Extinct Animals Laboratory (Lab) | 1 |
| BSCI401 | Animal Communication | 3 |
| BSCI403 | Biology of Vision | 3 |
| BSCI460 | Plant Ecology | 3 |
| BSCI462 | Population Ecology | 3 |
| BSCI464 | Microbial Ecology | 3 |
| BSCI465 | | 3 |
| BSCI467 | Freshwater Biology (Lab) | 4 |
| BSCI473 | Marine Ecology | 3 |
| BSCI480 | Arthropod Form and Function (Lab) | 4 |
| BSCI481 | Insect Diversity and Classification (Lab) | 4 |
| BSCI483 | Insects, Pathogens, and Public Health | 3 |
| BSCI494 | Animal-Plant Interactions | 3 |
| **Additional Courses (Optional)** | | |
| BSCI223 | General Microbiology [2] | 4 |
| or BSCI283 | Principles of Microbiology | |
| Departmental Honors Seminars | | |
| BSCI378H | Cell Biology and Molecular Genetics Department Honors Seminar | 1 |
| BSCI398H | Biology Department Honors Seminar | 1 |
| Special Topics Courses | | |
| BSCI328 | Special Topics in Entomology | 1-4 |
| BSCI338 | Special Topics in Biology | 1-4 |
| BSCI339 | Selected Topics in Biology | 1-4 |
| BSCI348 | Special Topics in Cell Biology and Molecular Genetics | 1-4 |
| Department Research Credit | | |
| BSCI379 | Cell Biology and Molecular Genetics Department Research | 1-3 |
| BSCI389 | Entomology Department Research | 1-2 |
| BSCI399 | Biology Department Research | 1-3 |

[1] Formerly BSCI474, cross-listed as HLSC374. Credit will be given for either BSCI374, HLSC374 or BSCI474.

[2] Credit will be given for either BSCI223 OR BSCI283. BSCI223/283 is a pre-requisite for some upper level BSCI courses. BSCI223/283 may count in the GENB Area credits but NOT as an upper-level lab

# Microbiology 0404D

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| BSCI283 | Principles of Microbiology [1] | 4 |
| BSCI412 | Microbial Genetics (Lab) | 4 |
| BSCI443 | Microbial Physiology | 3 |
| Biochemistry Courses | | 6 |
| BCHM461 & BCHM462 | Biochemistry I and Biochemistry II | 6 |
| Or | | |
| BCHM463 & BCHM465 | Biochemistry of Physiology and Biochemistry III | 6 |
| **Microbiology Area Courses** | | **7** |
| BSCI411 | Bioinformatics and Integrated Genomics (Lab) | 4 |
| BSCI417 | Microbial Pathogenesis | 3 |
| BSCI422 | Principles of Immunology | 3 |
| BSCI423 | Immunology Laboratory | 2 |
| BSCI424 | Pathogenic Microbiology (Lab) | 4 |
| BSCI437 | General Virology | 3 |
| BSCI464 | Microbial Ecology | 3 |
| Special Topics Courses | | |
| BSCI338 | Special Topics in Biology | 1-4 |
| BSCI339 | Selected Topics in Biology | 1-4 |
| BSCI348 | Special Topics in Cell Biology and Molecular Genetics | 1-4 |
| Departmental Honors Seminars | | |
| BSCI378H | Cell Biology and Molecular Genetics Department Honors Seminar | 1 |
| BSCI398H | Biology Department Honors Seminar | 1 |
| **Enrichment** | | **3** |

Minimum 3 credits from any 300- or 400-level BSCI, CHEM, or BCHM course.

[1] or BSCI223 with permission of Undergraduate Program Director. Students cannot get credit for both BSCI223 and BSCI283.

# Physiology & Neurobiology 0404E

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | **13** |
| BCHM461 | Biochemistry I | 3 |
| or BCHM463 | Biochemistry of Physiology | |
| BSCI330 | Cell Biology and Physiology (Lab) | 4 |
| BSCI353 | Principles of Neuroscience [1] | 3 |
| BSCI450 | Mammalian Systems Physiology | 3 |
| **Physiology and Neurobiology area courses** | | **11** |
| BCHM462 | Biochemistry II | 3 |

| | | |
|---|---|---|
| BCHM464 | Biochemistry Laboratory | 3 |
| BCHM465 | Biochemistry III | 3 |
| BSCI360 | Principles of Animal Behavior | 3 |
| BSCI370 | Principles of Evolution | 3 |
| BSCI374 | Mathematical Modeling in Biology (Lab) [2] | 4 |
| BSCI401 | Animal Communication | 3 |
| BSCI402 | | 3 |
| BSCI403 | Biology of Vision | 3 |
| BSCI407 | Behavioral Genetics | 3 |
| BSCI410 | Molecular Genetics | 3 |
| BSCI414 | Recombinant DNA Laboratory | 3 |
| BSCI416 | Human Genetics | 3 |
| BSCI420 | Cell Biology Lectures | 3 |
| BSCI422 | Principles of Immunology | 3 |
| BSCI425 | Advanced Cell Biology Lab Practices | 2 |
| BSCI423 | Immunology Laboratory | 2 |
| BSCI430 | Developmental Biology | 3 |
| BSCI433 | Biology of Cancer | 3 |
| BSCI442 | Plant Physiology (Lab) | 4 |
| BSCI443 | Microbial Physiology | 3 |
| BSCI446 | Neural Systems | 3 |
| BSCI447 | General Endocrinology | 3 |
| BSCI451 | Mammalian Systems Physiology Laboratory | 2 |
| BSCI452 | Diseases of the Nervous System | 3 |
| BSCI454 | Neurobiology Laboratory | 1 |
| Statistics, one course maximum | | |
| BIOM301 | Introduction to Biometrics | 3 |
| STAT400 | Applied Probability and Statistics I | 3 |
| STAT464 | Introduction to Biostatistics | 3 |
| Special Topics Courses | | |
| BSCI328 | Special Topics in Entomology | 1-4 |
| BSCI338 | Special Topics in Biology | 1-4 |
| BSCI339 | Selected Topics in Biology | 1-4 |
| BSCI348 | Special Topics in Cell Biology and Molecular Genetics | 1-4 |
| Departmental Honors Seminars | | |
| BSCI378H | Cell Biology and Molecular Genetics Department Honors Seminar | 1 |
| BSCI398H | Biology Department Honors Seminar | 1 |
| **Enrichment** | | **3** |
| Minimum 3 credits from any 300- or 400-level BSCI, CHEM, or BCHM course. | | |

[1] Starting Fall 2012, only BSCI353 satisfies the Neurobiology course requirement that was previously fulfilled by BSCI446 or BSCI453.

[2] Formerly BSCI474, cross-listed as HLSC374. Credit will be given for either BSCI374, HLSC374 or BSCI474.

# Individualized Studies 0404

The Individualized Studies specialization (BIVS) requires permission of the Assistant Dean of Undergraduate Academic Programs, and involves an approved proposal to do coursework in the College and in other disciplines.

**Required Courses**

- Six credits in biochemistry and/or quantitative coursework, approved by advisor

**Individualized Studies Area Courses**

- 21 credits approved by advisor
- Maximum of 4 credits at the 200-level
- At least 3 credits, but a maximum of 6 credits, from courses outside of CMNS, cannot double count as Advanced Program
- Courses taken to satisfy Advanced Program must support BIVS topic
- At least two upper-level labs
- Lab courses offered as separate credit must be successfully completed with lecture as co- or pre-requisite
- Must include two credits for independent research paper related to BIVS topic, written under the direction of advisor

# Other Requirements for the Biological Sciences Major

Students receiving a degree in the Biological Sciences from the University of Maryland must earn at least 120 credits with a cumulative minimum GPA of 2.000 in all courses being counted toward the degree as well as in all courses associated with the major. Additionally, all Biological Sciences major courses must have a grade of "C-" or better.

# GRADUATION PLANS

Click here (https://cmns.umd.edu/undergraduate/advising-academic-planning/academic-planning/four-year-plans/four-year-plans-gened/) for roadmaps for graduation plans in the College of Computer, Mathematical, and Natural Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# ADVISING

Information on BSCI advising can be found at: http://bsci.umd.edu/advising/.

All freshmen and new transfer students will be assigned a professional staff BSCI advisor or a faculty member in one of the BSCI departments. Students will be assigned to a departmental faculty advisor once they have successfully completed a basic sequence of courses. The following persons for the indicated specialization areas coordinate the departmental faculty advisors. These coordinating advising offices can be contacted to make appointments with an advisor or for any other information regarding that specialization area.

## Specializations: CEBG, GENB (N–Z), and MICB

**Department of Cell Biology & Molecular Genetics**
Undergraduate Office
1109 Microbiology
Phone: 301-405-2766

**Undergraduate Director:** Dr. David Straney
3122 Microbiology

Phone: 301-405-1622
straney@umd.edu

### Specialization: GENB (A–M)

**Department of Entomology**
Main Office
4112 Plant Sciences Building
Phone: 301-405-3911

**Undergraduate Director:** Dr. David Hawthorne
4132 Plant Sciences Building
Phone: 301-405-2401
djh@umd.edu

### Specializations: ECEV and PHNB

**Department of Biology**
Undergraduate Office
1204A Biology-Psychology Building
Phone: 301-405-6904
bioundergrad@umd.edu

**Undergraduate Director:** Dr. Sara Lombardi
1204F Biology-Psychology Building
Phone: 301-405-2391
saral@umd.edu

### Specialization: BIVS, Secondary Education, and Science in the Evening

**College of Computer, Mathematical, and Natural Sciences**
Undergraduate Academic Programs Office
Biology-Psychology Building, Room 1200
Phone: 301-405-6892

**Assistant Dean:** Dr. Joelle Presson
Phone: 301-405-6892
jpresson@umd.edu

Laboratory research, fieldwork, and internships are valuable co-curricular experiences that add value to a student's academic experience in BSCI disciplines. We encourage students to pursue one or more of these experiences during their undergraduate studies. Please see the College website (http://cmns.umd.edu/undergraduate/research-internships/) for more information about experiential learning for CMNS undergraduates.

# OPPORTUNITIES

## Internships

See http://cmns.umd.edu/undergraduate/research-internships/.

## Honors Program

Outstanding students are encouraged to apply to departmental Honors Programs. Through the Honors Programs, students will become actively involved in the ongoing scientific research at the university. Information about these honors programs may be obtained from the Undergraduate Academic Programs Office, 1322 Symons Hall, 301-405-6892.

## Student Societies and Professional Organizations

Information on student organizations of interest to Biological Sciences and other CMNS majors can be found at https://terplink.umd.edu/organizations/.

## Academic Programs and Departmental Facilities

In addition to offering high-quality undergraduate specializations in the Biological Sciences, the BSCI program participates in the collaborative program in secondary teaching: Terrapin Teachers (https://terrapinteachers.umd.edu). This program allows students to develop their expertise in communicating science to diverse audiences and provides a path toward certification to teach secondary school science or math.

# Biology

**College of Computer, Mathematical, & Natural Sciences**
1204A Biology-Psychology Building
Phone: 301-405-6904
bioundergrad@umd.edu
http://biology.umd.edu

The Department of Biology is committed to an integrative understanding of organisms ranging from processes occurring at the level of molecules to human impacts on global ecological scales. This integrative approach is evident in the variety of courses we offer. Courses offered by Biology focus on the function of molecules or cells (e.g., Membrane Biophysics, Mammalian Histology, Neurophysiology), on the integration of organ systems (e.g., Vertebrate Form and Function, Mammalian Physiology), on the interaction of organisms with each other and their environment (e.g. Animal Behavior, Plant Ecology, Population Ecology), on evolutionary process and diversification (e.g., Principles of Evolution), and/or on the relationship between humans and their environment (e.g., Biology of Conservation and Extinction). In addition to a strong foundation in basic biology, our faculty provide students interested in medical careers with courses that discuss medical applications (Biology of Cancer, Diseases of the Nervous System) and evolutionary considerations. Our program has particular strengths in neuroscience, evolutionary developmental biology, and ecology. Our diverse faculty and our linkages with other institutions, such as the National Institutes of Health and the Smithsonian Institution, provide students with a wealth of research opportunities to prepare them for careers in medicine, conservation biology, public policy, education, and more.

Courses offered by this department may be found under the following acronym(s): BSCI, BIOL, NACS, and BISI.

The Department of Biology faculty coordinate and advise students who specialize in the following areas:

- Biological Sciences: Ecology and Evolution (ECEV)
- Biological Sciences: Physiology and Neurobiology (PHNB)
- Environmental Science and Policy: Biodiversity & Conservation Biology concentration (ENSP-BIOD)

The requirements for the Biological Sciences major can be found here (p. 319).

## Admission to the Biological Sciences Program

The Department of Biology offers undergraduate courses in the Biological Sciences Program. Biological Sciences is a limited-enrollment program. Specific information about admission requirements for the major can be found here (https://www.lep.umd.edu/bioscience.html#freshman).

## Program Learning Outcomes

- Students will master the critical knowledge in biology relevant to the next stage in their career.
- Students will demonstrate an ability to use and apply appropriate quantitative methods in the biological sciences.
- Students will be able to critically evaluate and integrate scientific findings in the biological sciences and apply this understanding to areas of professional and public interest.
- Students will be able to effectively communicate through speaking and writing the processes of science and the results of scientific inquiry.
- Students will master experimental design and laboratory skills relevant to the next stage in their career.

# PROGRAMS

## Majors

- Biological Sciences (p. 318) (Ecology and Evolution-ECEV)
- Biological Sciences (p. 318) (Physiology and Neurobiology-PHNB)
- Environmental Science and Policy (p. 109) (Biodiversity & Conservation Biology-ENSP-BIOD)
- Neuroscience (p. 325) (CMNS-Biology)

# ADVISING

Students are assigned an academic advisor on the basis of their area of specialization. The Department of Biology faculty coordinate and advise students who specialize in the following areas:

- Biological Sciences: Ecology and Evolution (ECEV)
- Biological Sciences: Physiology and Neurobiology (PHNB)
- Environmental Science and Policy: Biodiversity & Conservation Biology concentration (ENSP-BIOD)

Students may contact the Department of Biology (bioundergrad@umd.edu) for assistance.

For advising in other Biological Sciences Specialization areas, see the Biological Sciences Major (p. 318) listing in this catalog.

# OPPORTUNITIES

## Undergraduate Research Experiences

The Department of Biology offers a wealth of undergraduate research opportunities. Students doing undergraduate research with a biology department faculty member serving as advisor or co-advisor may sign up for credit under BSCI399, BSCI399L, or BSCI399H or may do research on a volunteer basis. More general information on research opportunities in the Biological Sciences may be found at: http://cmns.umd.edu/undergraduate/research-internships/.

## Honors Program

The Department of Biology Honors Program offers highly motivated and academically qualified students the opportunity to work closely with a faculty mentor on an original, independent, research project. Students are required to participate in the program for at least three semesters and need not to have been previously admitted to the Honors College to participate. Successful completion of the program requires a public presentation of your research and defending a written thesis to a committee of faculty experts. Contact the Biology Undergraduate Office (301-405-6904; bioundergrad@umd.edu) for more information.

# Neuroscience Major (CMNS)

**Program Director:** Hilary Bierman, Ph.D.

The Neuroscience major is jointly offered by the Departments of Biology (p. 324) in the College of Computer, Mathematical, and Natural Sciences and Psychology (p. 277) in the College of Behavioral and Social Sciences.

The Neuroscience major offers rigorous training in the interdisciplinary study of brain and behavior. Students complete a required set of NEUR courses as well as a supporting sequence of coursework in mathematics, biology, chemistry, physics, and psychology. Students then choose an upper-level specialization and coursework in (1) cellular, molecular, and physiological neuroscience or (2) behavioral and cognitive neuroscience. The Neuroscience major prepares students for a broad range of career paths including: scientific research, medicine, clinical psychology, allied health professions, or science-related government, nonprofit, or private sector employment.

## Admission to the Major

The Neuroscience major is a Limited Enrollment Program. Information on limited enrollment programs can be found at: http://lep.umd.edu.

**Transfer Admission Requirements**
Students beyond their first semester and those off campus wishing to transfer are required to meet the following gateway criteria:

- Completion of MATH130, MATH135 or MATH140 with a minimum grade of C-
- Completion of BSCI170 AND BSCI171 (formerly BSCI105) and BSCI160 AND BSCI161 (formerly BSCI106) with a minimum grade of C-
- Completion of CHEM131 AND CHEM132 and CHEM231 AND CHEM232 with a minimum grade of C-

A minimum grade point average of 2.7 in all courses taken at the University of Maryland and all other institutions is required for internal and external transfer students.

## Program Learning Outcomes

1. Demonstrate a knowledge base in the field of neuroscience and supporting disciplines.
2. Describe the current techniques and strategies in neuroscience research.
3. Demonstrate competence in scientific reasoning and critical thinking.
4. Demonstrate effective effective professional scientific communication skills.

5. Describe the role of neuroscience in social and cultural contexts as well as the influences of social and cultural context on neuroscience: understand the influences, current and potential, of neuroscience on other fields such as medicine, education, the arts, and the social sciences, recognize the relationships between scientific research and the culture(s) in which it is embedded, and understand and follow ethical practices in academic study, scientific research, and professional life. Students will be able to demonstrate how neuroscience research has been used to oppress and marginalize groups through history and how it might be used to mitigate disparities.
6. Demonstrate an appreciation of possible career paths available to students proficient in neuroscience.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **NEUR Required Courses** | | |
| NEUR200 | Introduction to Neuroscience | 3 |
| NEUR305 | Neural Systems and Circuits | 3 |
| NEUR306 | Cellular and Molecular Neuroscience | 3 |
| NEUR405 | Neuroscience Laboratory | 3 |
| **Required Supporting Courses** | | |
| MATH135 | Discrete Mathematics for Life Sciences | 4 |
| or MATH140 | Calculus I | |
| MATH136 | Calculus for Life Sciences | 4 |
| or MATH141 | Calculus II | |
| STATISTICS | BIOM301, EPIB315, PSYC200, STAT400, STAT464, or DATA400 | 3 |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | 4 |
| BSCI160 & BSCI161 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab | 4 |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | 4 |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | 4 |
| CHEM241 & CHEM242 | Organic Chemistry II and Organic Chemistry Laboratory II | 4 |
| CHEM271 & CHEM272 | General Chemistry and Energetics and General Bioanalytical Chemistry Laboratory | 4 |
| PHYS131 | Fundamentals of Physics for Life Sciences I | 4 |
| or PHYS141 | Principles of Physics | |
| or PHYS161 | General Physics: Mechanics and Particle Dynamics | |
| PHYS132 | Fundamentals of Physics for Life Sciences II [1] | 4 |
| or PHYS142 | Principles of Physics | |
| or PHYS260 | General Physics: Electricity, Magnetism and Thermodynamics | |
| PSYC100 | Introduction to Psychology | 3 |
| UNIV100 | The Student in the University (or equivalent) | 1 |
| **Track Courses [2,3]** | | **16-20** |
| Complete at least 5 courses, including at least 3 courses from within one track and at least 1 lab course | | |
| MOLECULAR, CELLULAR, AND PHYSIOLOGICAL TRACK [4] | | |
| BCHM463 | Biochemistry of Physiology | |
| or BCHM461 | Biochemistry I | |
| BSCI222 | Principles of Genetics | |
| or HLSC322 | Principles of Genetics and Genomics | |
| BSCI330 | Cell Biology and Physiology | |
| BSCI343 | Cellular Mechanisms of Aging and Disease | |
| BSCI357 | Neurobiology of Chemosensory Systems | |
| BSCI381 | Molecular Neuroethology | |
| BSCI402 | | |
| BSCI403 | Biology of Vision | |
| BSCI410 | Molecular Genetics | |
| BSCI415 | Molecular Genetics Laboratory | |
| BSCI430 | Developmental Biology | |
| BSCI431 | The Origin and Evolution of Nervous Systems | |
| BSCI440 | Mammalian Physiology | |
| or BSCI450 | Mammalian Systems Physiology | |
| BSCI441 | Mammalian Physiology Laboratory | |
| or BSCI451 | Mammalian Systems Physiology Laboratory | |
| BSCI446 | Neural Systems | |
| BSCI452 | Diseases of the Nervous System | |
| BSCI456 | Advanced Cellular Neuroscience | |
| KNES370 | Motor Development | |
| KNES462 | Neural Basis of Human Movement | |
| NEUR379 | Special Topics: Research in Neuroscience | |
| NEUR479 | Advanced Research in Neuroscience (Neuroscience Research Lab; BSCI399(H, L) may be substituted with permission) | |
| SPECIAL TOPICS: BSCI338, BSCI339, BSCI438 when specifically approved. Check with your advisor. | | |
| BEHAVIORAL AND COGNITIVE TRACK [4] | | |
| BSCI355 | Neurobiology of Extraordinary Senses | |
| BSCI360 | Principles of Animal Behavior | |
| BSCI401 | Animal Communication | |
| BSCI407 | Behavioral Genetics | |
| EDHD310 | Your Brain on Education: The Neuroscience of Learning and Development | |
| KNES385 | Motor Control and Learning | |
| KNES445 | Exercise and Brain Health | |
| PHIL202 | Know Thyself: Wisdom Through Cognitive Science | |
| PHIL366 | Philosophy of Mind | |
| PSYC300 | Research Methods in Psychology Laboratory | |
| PSYC302 | Fundamentals of Learning and Behavior | |
| PSYC307 | Collective Behavior and Decision Making in Human and Animal Groups | |
| PSYC310 | Perception | |
| PSYC341 | Introduction to Memory and Cognition | |
| PSYC403 | Animal Behavior | |
| PSYC404 | Introduction to Behavioral Pharmacology | |
| PSYC406 | Neuroethology | |
| PSYC407 | Behavioral Neurobiology Laboratory | |
| PSYC411 | Introduction to Functional Magnetic Resonance Imaging | |
| PSYC414 | Science of Sleep and Biological Rhythms | |

| | |
|---|---|
| PSYC417 | Data Science for Psychology and Neuroscience Majors |
| PSYC442 | Psychology of Language |
| PSYC489 | Advanced Special Topics in Psychology |
| PSYC455 | |
| NEUR379 | Special Topics: Research in Neuroscience |
| NEUR479 | Advanced Research in Neuroscience (Neuroscience Research Lab; BSCI399(H, L) may be substituted with permission) |
| SPECIAL TOPICS: PSYC489 or BSCI339 when specifically approved. Check with your advisor. | |
| **Total Credits** | **75-79** |

1 PHYS260 must be taken with PHYS261 to earn 4 credits
2 Three pre-approved Neuroscience Research credits can be applied to the major as one course equivalent. One a single Research course equivalent can be applied to the major.
3 Four pre-approved NEUR479 credits in the same faculty research laboratory can satisfy the lab requirement.
4 Courses may be occasionally added or removed from this list. Not all courses may be available each semester.

# GRADUATION PLANS

Click here (https://cmns.umd.edu/undergraduate/advising-academic-planning/academic-planning/four-year-plans/four-year-plans-gened/) for roadmaps for graduation plans in the College of Computer, Mathematical, and Natural Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# ADVISING

## Advising for Neuroscience Majors

**Students in the Neuroscience major have to complete a mandatory advising appointment every semester.** Mandatory advising appointments serve as consistent touch points throughout a student's undergraduate experience. Our advising office takes a holistic advising approach. Though our priority is to guide students to achieve academic success and graduate from our major, advisors are available to discuss research, academic, and career interests, extracurricular involvement, as well as personal successes and challenges.

Students are assigned a Neuroscience Academic Advisor during their first semester in the major.

Student advising appointments are scheduled through TerpEngage (https://amp.umd.edu/terpengage/). For brief matters, majors can also utilize drop-in advising hours.

***Additional information regarding advising for current neuroscience majors can be found*** here ***(***https://neur.umd.edu/landing/Advising/***).***

## Advising for Prospective Neuroscience Majors

Current UMD students that are interested in becoming neuroscience majors are encouraged to visit our webpage, Advising for Prospective Internal Transfer Student (https://neur.umd.edu/advising/advising-prospective-internal-transfer-students/). This site provides necessary requirements and directions for how to request a prospective major advising appointment.

Currently, we are not able to provide advising appointments for external prospective majors (transfer students or incoming freshman). We encourage these students to visit our website (http://neur.umd.edu) and attend open house events (https://cmns.umd.edu/undergraduate/future-students/visit/).

***Additional information regarding advising for prospective majors can be found*** here ***(***https://neur.umd.edu/landing/Advising/***).***

# Cell Biology and Molecular Genetics

**College of Computer, Mathematical, & Natural Sciences**
1109 Microbiology Building
Phone: 301-405-5435
http://cbmg.umd.edu

The Department of Cell Biology and Molecular Genetics participates in the teaching of all BSCI majors and in the advising of students in the following Biological Sciences Program specialization areas:

- Biological Sciences: Cell Biology and Genetics (CEBG)
- Biological Sciences: Microbiology (MICB)
- Biological Sciences: General Biology (GENB) *advising last names that begin with the letters N through Z*

Our courses are taught in four basic areas that represent faculty research interests and expertise including:

- Cell and Developmental Biology
- Genetics and Genomics
- Microbiology, Microbial Pathogenesis and Immunology
- Plant Biology

The requirements for the Biological Sciences major can be found here (p. 319).

## Admission to the Biological Sciences Program

Biological Sciences is a limited-enrollment program. Specific information about admission requirements for the major can be found at the following link: http://lep.umd.edu/cmns-lep.pdf.

# PROGRAMS

## Majors

- Biological Sciences (p. 318) (Cell Biology and Genetics-CEBG)
- Biological Sciences (p. 318) (General Biology-GENB) *advising for last names N-Z*
- Biological Sciences (p. 318) (Microbiology-MICB)

## ADVISING

Advising is mandatory for certain students (freshmen, recent change in major or specialization, GPA of 2.5 or below). The department coordinates with the BSCI office to advise students in the following Biological Sciences specialization areas:

- Biological Sciences: Microbiology (MICB)
- Biological Sciences: Cell Biology and Genetics (CEBG)
- Biological Sciences: General Biology (GENB) *Last names that begin with the letters N through Z*

Course requirements in these specializations can be found in the Biological Sciences requirements (p. 319) page. All specializations have common introductory and supporting courses. See the different advanced courses for each specialization.

Your assigned departmental advisor can be found in TerpEngage in your Team tab. Advisors are typically assigned in early October and early March. Questions about your assigned advisor, method of arranging advising appointments, or questions before applying for the major can be addressed by contacting the Cell Biology and Molecular Genetics Undergraduate Program Office, 1109 Microbiology (301-405-2766). See CBMG department advising information at: http://cbmg.umd.edu/education/undergraduate/advising/.

For advising in other Biological Sciences Specialization areas, see the Biological Sciences Major (p. 318) listing in this catalog.

## OPPORTUNITIES

### Undergraduate Research Experiences

Students may participate in department hosted research experiences in faculty laboratories or laboratories at off campus locations. Please contact the Cell Biology and Molecular Genetics Undergraduate Office (301-405-2766) for more information or see the site: http://cbmg.umd.edu/education/undergraduate/ under "Research and Internships."

Specific courses in the department that offer credit for the research are described at: http://cbmg.umd.edu/education/undergraduate/research/. Areas of research in the CBMG department are described at: http://cbmg.umd.edu/research-1/research-areas/ with listing of faculty and their research.

### Honors Program

The Departmental Honors Program involves a long term (three semester) independent research project undertaken with a faculty advisor. Students register for BSCI378H (research) and BSCI379H (seminar) each semester. Admission is based upon GPA. Students must arrange the research opportunity prior to application. Please contact the Cell Biology and Molecular Genetics Undergraduate Office for more information or see the site: http://cbmg.umd.edu/education/undergraduate/undergrad-honors/.

### Student Societies and Professional Organizations

All students interested in microbiology are encouraged to join the University of Maryland Student Chapter of the American Society for Microbiology. Sigma Alpha Omicron is the honors chapter of this group. The groups meet regularly on campus. Information is available through the Undergraduate Program Office.

### Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

### Awards and Recognition

The department recognizes graduating seniors with awards funded by generous donors. These are listed at http://cbmg.umd.edu/about-1/scholarships-awards/.

# Chemistry and Biochemistry

**College of Computer, Mathematical & Natural Sciences**
1526 Chemistry Building
Phone: 301-405-1788
chem-web@umd.edu
http://chem.umd.edu

The department blends chemistry and biochemistry with cross cutting research programs in energy and environment, biomaterials and nanobiotechnology, advanced materials and quantitative science. Grounded in traditional subfields (analytical, biochemistry, inorganic, organic, and physical chemistry), research in the department extends from molecular biophysics and catalysis to environmental and polymer chemistry, and onto theoretical and computational chemistry. Nationally recognized, award-winning faculty instruct students and provide them with research opportunities that lead to their independent careers. In addition, vigorous collaborative interactions with nearby national labs (including NIH, NIST, and the FDA) expand departmental opportunities and research.

## PROGRAMS

### Majors

- Biochemistry Major (p. 329)
- Chemistry Major (B.A., B.S.) (p. 330)

## ADVISING

There is mandatory advising for all Chemistry and Biochemistry majors each semester. Advising appointments can be made by contacting the undergraduate office, 1206 Chemistry Building, 301-405-1791. Information can be found at: http://chem.umd.edu/undergraduate/current-majors/advising-and-registration/.

## OPPORTUNITIES

### Honors Program

Students with a GPA of 3.0 or better who have completed at least two semesters of CHEM399 have an opportunity to sign up for CHEM398 in their senior year and be considered for departmental honors. After successful completion of a senior honors thesis and seminar, graduation with honors or with high honors in chemistry or biochemistry can be attained. Details are available here: http://chem.umd.edu/

undergraduateprogram/current-students/chemistry-biochemistry-honors-program/.

## Student Societies and Professional Organizations

Alpha Chi Sigma Chemistry Fraternity is a professional fraternity which recruits men and women students from chemistry, biochemistry, and related science majors during each fall and spring semester. The fraternity holds weekly meetings and provides tutoring for students in lower-level chemistry courses. The office is in Room 2106A Chemistry Building. Dr. Joseph Houck is the faculty advisor (Room 1102 Chemistry Building, 301-405-9289).

The student affiliate program of the American Chemical Society (SA-ACS) is designed to introduce students in chemistry, biochemistry and related fields to a variety of professional activities. Student affiliates will gain skills and make contacts aimed at launching a successful career in science. Activities include networking and meeting with professionals, attending national meetings, and participating in public outreach programs. Affiliates also receive subscriptions to Chemical & Engineering News, the undergraduate career magazine, *in Chemistry*, as well as gaining on-line access to announcements regarding job and intern opportunities. The student affiliate office is located in Room 2112A of the Chemistry Building.

## Scholarships and Financial Assistance

The department awards several scholarships to undergraduate majors with financial need and outstanding academic records, including the Isidore and Annie Adler Scholarship, the Leidy Foundation Scholarship, the G. Forrest Woods Scholarship, the James H. & Patricia H. Rich Scholarship, the Bruce Jarvis Scholarship, the Francesco Barone Scholarship, and the James Stewart Scholarship. Scholarship amounts are contingent on available funds and some may be divided among multiple awardees. Any given scholarship is not necessarily awarded every year. There is no application process; all declared chemistry and biochemistry majors are automatically reviewed annually by the Departmental Awards Committee. The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# Biochemistry Major

**Program Director:** Lee Friedman, Ph.D.

The study of molecular and atomic properties and interactions that encompass Chemistry and Biochemistry are central to many scientific disciplines including biology, geology, astronomy, environmental science, materials science and numerous others. Chemistry and Biochemistry majors continue to graduate or professional school, and obtain employment as educators and technical scientists. Courses offered by this department may be found under the following acronyms: BCHM, CHEM

## Admission to the Major

Chemistry and Biochemistry are part of a Limited Enrollment program (LEP) within the College of Computer, Mathematical, and Natural Sciences (CMNS). Current UMCP students who wish to declare in CHEM or BCHM must complete a series of gateway courses (CHEM146/CHEM177 (or CHEM131/CHEM132), CHEM237 (or CHEM231/CHEM232), and MATH140 and MATH141) prior to applying to the program. Information is available at: http://lep.umd.edu.

## Placement in Courses

The Department of Chemistry and Biochemistry rigorously enforces all of its prerequisites. Enrollment in CHEM131/CHEM132 or CHEM146/CHEM177 requires placement in calculus (MATH120 or MATH135 or MATH140).

## Program Learning Outcomes

1. Students should demonstrate mastery of a body of knowledge represented by the curricula in Chemistry and Biochemistry. Students should have mastered the critical knowledge in each level in the curriculum that is necessary to move on to the next level in the curriculum.
2. The ability to read, evaluate and interpret chemical and numerical information for a novel problem using their foundational knowledge in science.
3. Students should have knowledge of appropriate safe-handling procedures and disposal of chemicals.
4. Students at lower level should demonstrate an ability to carry out key experimental techniques used in the chemical and life sciences disciplines.
5. Students at upper level should be able to design experiment to test specific hypotheses, carry out these experiments using appropriate instrumentation and analyze the results.
6. Students should demonstrate the ability to use the broader scientific literature to select appropriate information to support his/her work.
7. Students should effectively communicate, both verbally and in writing, the processes of science and the results of scientific inquiry using appropriate language and models of chemistry (i.e. equations, symbolism, etc).
8. Students should understand the importance of good ethical practices in scientific research.
9. Students should continue their career in science through gainful employment or entrance into a graduate or professional school.

# REQUIREMENTS

All required chemistry, biochemistry, and upper-level biological sciences courses must be passed with a minimum grade of "C-". Required supporting courses, including BSCI170 & BSCI171, must be passed with a 2.0 grade point average.

| Course | Title | Credits |
|---|---|---|
| UNIV100 | The Student in the University | 1 |
| **Lower-Level CHEM Courses** | | |
| CHEM146 & CHEM177 | Principles of General Chemistry and Introduction to Laboratory Practices and Research in the Chemical Sciences | 5 |
| CHEM237 | Principles of Organic Chemistry I | 4 |
| CHEM247 | Principles of Organic Chemistry II | 4 |
| CHEM276 & CHEM277 | General Chemistry and Energetics - Majors and Fundamentals of Analytical and Bioanalytical Chemistry Laboratory | 5 |
| **Supporting Courses** | | |

| | | |
|---|---|---|
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | 4 |
| PHYS161 & PHYS260 & PHYS261 | General Physics: Mechanics and Particle Dynamics and General Physics: Electricity, Magnetism and Thermodynamics and General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | 7 |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| MATH241 | Calculus III | 4 |
| **Required Upper Level CHEM/BCHM Courses** | | |
| CHEM395 | Professional Issues in Chemistry and Biochemistry | 1 |
| CHEM425 | Instrumental Methods of Analysis | 4 |
| CHEM481 & CHEM483 | Physical Chemistry I and Physical Chemistry Laboratory I [1] | 5 |
| BCHM461 | Biochemistry I | 3 |
| BCHM462 | Biochemistry II | 3 |
| BCHM464 | Biochemistry Laboratory | 3 |
| BCHM465 | Biochemistry III | 3 |
| BCHM485 | Physical Biochemistry | 3 |
| Approved biological science courses | | 6 |
| **Total Credits** | | **73** |

[1] **Note:** All majors and potential majors are encouraged to take MATH241 prior to beginning Physical Chemistry.

- Specific information about course requirements can be obtained in the undergraduate office.
- Students who enroll in the chemistry or biochemistry program at any time following the first semester of study typically will complete all or part of the non-majors introductory sequence (CHEM131,CHEM132, CHEM231/CHEM232, CHEM241/CHEM242 and CHEM271/CHEM272; CHEM132, CHEM232, CHEM242 and CHEM272 are co-requisite laboratory courses). In this situation, completion of an additional approved upper level CHEM or BCHM course may be required to fulfill the lower-level departmental major requirements. Transfer students who wish to pursue chemistry or biochemistry majors will have their previous chemistry course work carefully evaluated for placement in the appropriate courses.
- More information about and requirements for the Biochemistry major can be found at: http://www.chem.umd.edu/undergraduateprogram/current-students/majoradvising (http://www.chem.umd.edu/undergraduateprogram/current-students/majoradvising/).

# GRADUATION PLANS

Click here (https://cmns.umd.edu/undergraduate/advising-academic-planning/academic-planning/four-year-plans/four-year-plans-gened/) for roadmaps for graduation plans in the College of Computer, Mathematical, and Natural Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Chemistry Major (B.A., B.S.)

**Program Director:** Lee Friedman, Ph.D.

The study of molecular and atomic properties and interactions that encompass Chemistry and Biochemistry are central to many scientific disciplines including biology, geology, astronomy, environmental science, materials science and numerous others.

The Department of Chemistry and Biochemistry offers two options for undergraduate degrees in chemistry.

The traditional Bachelor of Science (BS) option provides in-depth instruction in quantitative methods and experimental design. This plan can be used to obtain an American Chemical Society (ACS) approved degree. The BS option is therefore strongly recommended for students who are seeking careers as practicing scientists or who intend to pursue graduate studies in Chemistry and related areas.

The Bachelor of Arts (BA) option provides sound, foundational instruction in all of the sub-disciplines of Chemistry including analytical, inorganic, organic, and physical chemistry as well as a biochemistry, but it provides more flexibility in upper level coursework, allowing students to pursue interdisciplinary studies. The BA track is recommended for students who intend to (1) obtain K12 teaching certification, (2) double major, minor, or earn certificates in outside areas such as business, public policy, data science, or public health.

Chemistry and Biochemistry majors continue to graduate or professional school, and obtain employment as educators and technical scientists. Courses offered by this department may be found under the following acronyms: BCHM, CHEM.

## Admission to the Major

Chemistry and Biochemistry are part of a Limited Enrollment program (LEP) within the College of Computer, Mathematical, and Natural Sciences (CMNS). Current UMCP students who wish to declare in CHEM or BCHM must complete a series of gateway courses (CHEM146/CHEM177 (or CHEM131/CHEM132), CHEM237 (or CHEM231/CHEM232), and MATH140 and MATH141 (or MATH 135 and MATH 136 for BA major)) prior to applying to the program. Information is available at: http://lep.umd.edu.

## Placement in Courses

The Department of Chemistry and Biochemistry rigorously enforces all of its prerequisites. Enrollment in CHEM131/CHEM132 or CHEM146/CHEM177 requires placement in calculus (MATH120 or MATH130 or MATH140).

## Program Learning Outcomes

1. Students should demonstrate mastery of a body of knowledge represented by the curricula in Chemistry and Biochemistry. Students should have mastered the critical knowledge in each level in the curriculum that is necessary to move on to the next level in the curriculum.

2. The ability to read, evaluate and interpret chemical and numerical information for a novel problem using their foundational knowledge in science.
3. Students should have knowledge of appropriate safe-handling procedures and disposal of chemicals.
4. Students at lower level should demonstrate an ability to carry out key experimental techniques used in the chemical and life sciences disciplines.
5. Students at upper level should be able to design experiments to test specific hypotheses, carry out these experiments using appropriate instrumentation, and analyze the results.
6. Students should demonstrate the ability to use the broader scientific literature to select appropriate information to support their work.
7. Students should effectively communicate, both verbally and in writing, the processes of science and the results of scientific inquiry using appropriate language and models of chemistry (i.e. equations, symbolism, etc).
8. Students should understand the importance of good ethical practices in scientific research.
9. Students should continue their career in science through gainful employment or entrance into a graduate or professional school.

# REQUIREMENTS

## Requirements for the Bachelor of Science In Chemistry (B.S.)

All required chemistry courses must be passed with a minimum grade of "C-". Required supporting courses, including BSCI170&171, must be passed with a 2.0 grade point average.

| Course | Title | Credits |
|---|---|---|
| **Lower-Level CHEM Courses** | | |
| CHEM146 & CHEM177 | Principles of General Chemistry and Introduction to Laboratory Practices and Research in the Chemical Sciences | 5 |
| CHEM237 | Principles of Organic Chemistry I | 4 |
| CHEM247 | Principles of Organic Chemistry II | 4 |
| CHEM276 & CHEM277 | General Chemistry and Energetics - Majors and Fundamentals of Analytical and Bioanalytical Chemistry Laboratory | 5 |
| **Supporting Courses** | | |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | 4 |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | 3 |
| PHYS260 & PHYS261 | General Physics: Electricity, Magnetism and Thermodynamics and General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | 4 |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| MATH241 | Calculus III | 4 |
| UNIV100 | The Student in the University | 1 |
| **Required Upper-Level CHEM Courses** | | |
| CHEM395 | Professional Issues in Chemistry and Biochemistry | 1 |
| CHEM425 | Instrumental Methods of Analysis | 4 |
| CHEM481 & CHEM483 | Physical Chemistry I and Physical Chemistry Laboratory I [1] | 5 |
| CHEM401 | Inorganic Chemistry | 3 |
| CHEM482 & CHEM484 | Physical Chemistry II and Physical Chemistry Laboratory II | 5 |
| ELECT UL | 6 credits of approved upper level CHEM/BCHM courses | 6 |
| **Total Credits** | | **66** |

In order to meet requirements for a degree approved by the American Chemical Society (ACS), students must complete a specific set of courses in addition to this curriculum. Information about ACS certification can be obtained in the undergraduate office.

## Requirements for the Bachelor of Arts in Chemistry (B.A.)

All required chemistry courses must be passed with a minimum grade of "C-". Required supporting courses, must be passed with a 2.0 grade point average.

| Course | Title | Credits |
|---|---|---|
| **Lower-Level CHEM Courses** | | |
| CHEM146 & CHEM177 | Principles of General Chemistry and Introduction to Laboratory Practices and Research in the Chemical Sciences | 5 |
| CHEM237 | Principles of Organic Chemistry I | 4 |
| CHEM247 | Principles of Organic Chemistry II | 4 |
| CHEM276 & CHEM272 | General Chemistry and Energetics - Majors and General Bioanalytical Chemistry Laboratory | 4 |
| **Supporting Courses** | | |
| MATH135 | Discrete Mathematics for Life Sciences | 4 |
| MATH136 | Calculus for Life Sciences | 4 |
| PHYS131 | Fundamentals of Physics for Life Sciences I | 4 |
| PHYS132 | Fundamentals of Physics for Life Sciences II | 4 |
| BSCI170 | Principles of Molecular & Cellular Biology | 3 |
| UNIV100 | The Student in the University | 1 |
| **Required Upper-Level CHEM Courses** | | |
| CHEM395 | Professional Issues in Chemistry and Biochemistry | 1 |
| CHEM401 | Inorganic Chemistry | 3 |
| BCHM461 | Biochemistry I | 3 |
| CHEM480 | Principles of Physical Chemistry | 3 |
| ELECT UL | 3 credits of approved upper level CHEM/BCHM courses | 3 |
| **Required Upper Level Lab Course (Select one from the following)** | | **3** |
| CHEM425 | Instrumental Methods of Analysis | 4 |
| BCHM464 | Biochemistry Laboratory | 3 |
| BCHM477 | Biomolecular Measurement and Data Analysis | 3 |
| **Total Credits** | | **63** |

Information about and requirements for the Chemistry major can be found at: http://chem.umd.edu/undergraduate/current-majors/advising-and-registration/.

# GRADUATION PLANS

Click here (https://cmns.umd.edu/undergraduate/advising-academic-planning/academic-planning/four-year-plans/four-year-plans-gened/) for roadmaps for graduation plans in the College of Computer, Mathematical, and Natural Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Computer Science

**College of Computer, Mathematical and Physical Sciences**
Brendan Iribe Center for Computer Science and Engineering
Phone: 301-405-2672
ugrad@cs.umd.edu
http://cs.umd.edu

The Department of Computer Science is home to myriad research areas and world renowned faculty. Our faculty work in artificial intelligence (AI) and machine learning, augmented and virtual reality, bioinformatics and computational biology, data science, computer vision and graphics, human computer interaction (HCI), theory of computing, and many more. For a more detailed list, please visit our research page at http://cs.umd.edu/research/.

# PROGRAMS

## Major

- Computer Science Major (p. 333)
- Immersive Media Design Major (CMSC) (p. 337)

## Minor

- Computational Finance Minor (CMSC) (p. 332)
- Computer Science Minor (p. 336)
- Data Science Minor (CMSC) (p. 336)
- Robotics and Autonomous Systems Minor (CMSC) (p. 339)

# ADVISING

All CS majors must attend an advising session each semester prior to registering for classes. Additional advising information is available at http://undergrad.cs.umd.edu/academic-advising/.

# OPPORTUNITIES

## Honors Program

Students looking for opportunities to enhance their computer science education are encouraged to participate in the Computer Science Undergraduate Honors Program. The program is open to students in the CS major who have earned a GPA of 3.5 in computer science courses and a GPA of 3.25 in overall coursework. Some of the benefits of the program include the following:

1. learning how to conduct research,
2. working closely with faculty members, and
3. increasing preparedness for graduate school.

For more information about the honors program, please visit the CS Honors website: http://undergrad.cs.umd.edu/departmental-honors/.

## Scholarships and Financial Assistance

There are multiple endowed scholarships available to students majoring in computer science. Additional details can be found at http://undergrad.cs.umd.edu/scholarships/.

Students may find employment as tutors, as undergraduate teaching assistants, or as members of the department's laboratory staff. Professors may also have funds to hire undergraduates to assist in research. Many students also participate in internship experiences, working in the computing industry during the summer after their sophomore and/or junior years.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# Computational Finance Minor (CMSC)

**Program Directors:** Albert S. Kyle, Ph.D. and Louiqa Raschid, Ph.D.

The Minor in Computational Finance will provide students with proficiency in applying analytical models and machine learning methods to solve challenging financial tasks. The Minor will introduce students to (pseudo) realistic tasks faced by financial analysts and researchers, as well as the real world datasets that are widely used across the financial industry and by financial regulators (e.g., SEC, FINRA, etc.). The Minor, which is only open to Computer Science majors, will equip students with the domain specific skills needed for positions in the financial industry (banking and investment) or with financial regulators (SEC, FINRA, Fannie Mae, etc.) or to explore innovative opportunities in the Financial Technology (FinTech) industry.

For more information about this minor visit http://rhsmith.umd.edu/programs/undergraduate/academics/academic-minors/.

## Program Learning Outcomes

1. Develop proficiency in manipulating financial datasets.
2. Apply analytical models to solve challenging financial tasks.
3. Apply machine learning methods to analyze financial datasets.
4. Engage with academic and industry mentors in a capstone project.
5. Engage in experiential learning projects that are designed to solve real world problems with real datasets.
6. Demonstrate analytical thinking skills through the use and application of analytical and machine learning methods.

# REQUIREMENTS

Admitted Computer Science majors will begin the minor in their junior year and MATH240, MATH241, and STAT400 (or equivalent courses) should be completed prior to entering the program. CMSC320 (or an equivalent course) should be completed either prior to beginning the minor or during a student's first semester in the minor.

| Course | Title | Credits |
|---|---|---|
| BUFN400 | Introduction to Financial Markets and Financial Datasets | 3 |
| CMSC320 | Introduction to Data Science | 3 |
| BUFN403 | Capstone Computational Finance Projects | 3 |
| One course from the following: | | 3 |
| BUFN401 | Option Theory and Derivatives | |
| BUFN402 | Portfolio Management | |
| One course from the following: | | 3 |
| CMSC421 | Introduction to Artificial Intelligence | |
| CMSC422 | Introduction to Machine Learning | |
| CMSC470 | Introduction to Natural Language Processing | |
| CMSC471 | Introduction to Data Visualization | |
| CMSC472 | Introduction to Deep Learning | |
| CMSC474 | Introduction to Computational Game Theory | |
| **Total Credits** | | **15** |

# Computer Science Major

**Program Director:** David Mount, Ph.D.

Computer science is the study of computers and computational systems: their application, design, development and theory. Principal areas within computer science include machine learning and data science, cybersecurity and privacy, human-computer interaction, artificial intelligence, programming languages, software engineering, computer systems and networking, algorithms and theory of computing, natural language processing, high-performance and quantum computing, databases systems, bioinformatics, robotics, computer vision, information visualization, and virtual- and augmented-reality systems. A computer scientist is concerned with problem solving. Problems range from abstract questions of what problems can be solved with computers to practical matters such as the design of computer systems that are efficient, secure, and easy for people to use.

## Admission to the Major

The Computer Science major is a Limited Enrollment Program. Please see the admission requirements and procedures at http://lep.umd.edu.

## Placement in Courses

Much of the knowledge at the early stage of the degree program is cumulative. To ensure that transfer and new students start with the appropriate courses, the department offers exemption exams for CMSC131, CMSC132, CMSC216, and CMSC250. Students who have taken CS courses prior to starting at Maryland can visit http://undergrad.cs.umd.edu/exemption-exams/ for more information.

## Program Learning Outcomes

1. Graduates will be able to create, augment, debug, and test computer software. These skills will be built progressively through the courses in the introductory sequence and in some courses beyond that.
2. Graduates will develop mathematical and reasoning skills that are needed for computer science.
3. Graduates will be able to design and implement programming projects that are similar to those seen in the real world.
4. Graduates will gain skills in communication.
5. Academic Research (Optional): Graduates will be able to work independently on a project.

## REQUIREMENTS

Much of the knowledge at the early stage of the degree program is cumulative. To ensure that transfer students start with the appropriate courses, the department offers exemption exams for CMSC131, CMSC132, CMSC216 and CMSC250. Students who have had CS courses prior to starting at Maryland are encouraged to schedule and take exemption exams.

A "C-" or better must be earned in all major requirements.

| Course | Title | Credits |
|---|---|---|
| **Required Lower Level Courses (Unless Exempt)** | | |
| MATH140 | Calculus I (see your advisor) | 4 |
| MATH141 | Calculus II | 4 |
| CMSC131 | Object-Oriented Programming I [1] | 4 |
| CMSC132 | Object-Oriented Programming II [1] | 4 |
| CMSC216 | Introduction to Computer Systems [1] | 4 |
| CMSC250 | Discrete Structures [1] | 4 |
| **Additional Required Courses** | | |
| CMSC330 | Organization of Programming Languages | 3 |
| CMSC351 | Algorithms | 3 |
| STAT4xx [2] | | 3 |
| MATH/AMSC/STAT xxx [2] | | 3-4 |
| **Upper Level Computer Science Courses [3]** | | |
| Select five 400 level courses from at least three of the following areas with no more than three courses in a given area: | | 15 |
| Area 1: Systems | | |
| CMSC411 | Computer Systems Architecture | |
| CMSC412 | Operating Systems | |
| CMSC414 | Computer and Network Security | |
| CMSC416 | Introduction to Parallel Computing | |
| CMSC417 | Computer Networks | |
| Area 2: Information Processing | | |
| CMSC420 | Advanced Data Structures | |
| CMSC421 | Introduction to Artificial Intelligence | |
| CMSC422 | Introduction to Machine Learning | |
| CMSC423 | Bioinformatic Algorithms, Databases, and Tools | |
| CMSC424 | Database Design | |
| CMSC426 | Computer Vision | |
| CMSC427 | Computer Graphics | |
| CMSC470 | Introduction to Natural Language Processing | |
| CMSC471 | Introduction to Data Visualization | |
| CMSC472 | Introduction to Deep Learning | |
| Area 3: Software Engineering and Programming Languages | | |
| CMSC430 | Introduction to Compilers | |
| CMSC433 | Programming Language Technologies and Paradigms | |
| CMSC434 | Introduction to Human-Computer Interaction | |
| CMSC435 | Software Engineering | |
| CMSC436 | Programming Handheld Systems | |
| CMSC471 | Introduction to Data Visualization | |

| | | |
|---|---|---|
| Area 4: Theory | | |
| CMSC451 | Design and Analysis of Computer Algorithms | |
| CMSC452 | Elementary Theory of Computation | |
| CMSC454 | Algorithms for Data Science | |
| CMSC456 | Cryptography | |
| CMSC457 | Introduction to Quantum Computing | |
| CMSC474 | Introduction to Computational Game Theory | |
| Area 5: Numerical Analysis | | |
| CMSC460 | Computational Methods [4] | |
| or CMSC466 | Introduction to Numerical Analysis I | |
| **Upper Level Concentration Requirement [5]** | | |
| Select at least 12 credits of 300-400 level courses from one discipline outside of CMSC | | 12 |
| **Total Credits** | | **63-64** |

**Students also have the option to complete the** Cybersecurity Specialization **(**p. 334**),** Data Science Specialization **(**p. 334**),** Machine Learning Specialization **(**p. 335**), or** Quantum Information Specialization **(**p. 335**)**

1 Students may fulfill CMSC131, CMSC132, CMSC216 or CMSC250 course requirements by passing proficiency exams before they start the sequence of classes.

2 This course must have prerequisite of MATH141 or higher; cannot be cross-listed with CMSC.

3 At the upper level, students take five (5) 400 level courses from at least three different areas with no more than three courses in a given area. An additional two (2) electives, totaling 6 credits, for the general computer science degree are also required. If students take more than three courses from an area, they will be counted as electives. Students can count one credit winter courses towards the elective requirement, as well as independent research or study with a faculty member, and other courses at the 300 or 400 level.

4 Credit will only be given for CMSC460 or CMSC466.

5 Students must also take at least 12 credits of 300-400 level courses from one discipline outside of CMSC. No course in or cross-listed with CMSC can be counted. An overall 2.0 average must be earned in these courses. Each course must be a minimum of 3 credits. Only 1 special topics or independent study course may be used.

# Cybersecurity Specialization

Students looking to pursue the cybersecurity specialization are required to complete the lower level courses (MATH140, MATH141, CMSC131, CMSC132, CMSC216, CMSC250), the additional required courses (CMSC330, CMSC351, MATH/STATXXX and STAT4xx beyond MATH141), and the upper level concentration requirements as detailed above. The difference in the specialization is the upper level computer science courses. Students must fulfill their computer science upper level course requirements from at least 3 areas.[1]

Students are required to take:

| Course | Title | Credits |
|---|---|---|
| CMSC414 | Computer and Network Security | 3 |
| CMSC456 | Cryptography | 3 |
| Students must choose four courses from: | | 12-13 |
| CMSC411 | Computer Systems Architecture | |
| CMSC412 | Operating Systems | |
| CMSC417 | Computer Networks | |
| CMSC430 | Introduction to Compilers | |
| CMSC433 | Programming Language Technologies and Paradigms | |
| CMSC451 | Design and Analysis of Computer Algorithms | |
| Upper Level Elective Courses: three credits from CMSC3XX or CMSC4XX excluding CMSC330 and CMSC351 [1] | | 3 |
| **Total Credits** | | **21-22** |

1 Students may fulfill an area requirement under the Upper Level Elective Courses requirement. Courses that fall within each area are listed in the General Track degree requirements. The five areas are: Area 1: Systems, Area 2: Information Processing, Area 3: Software Engineering and Programming Languages, Area 4: Theory, and Area 5: Numerical Analysis.

# Data Science Specialization

Students looking to pursue the data science specialization are required to complete the lower level courses (MATH140, MATH141, CMSC131, CMSC132, CMSC216, CMSC250), the additional required courses (CMSC330, CMSC351, STAT400 and MATH240), and the upper level concentration requirements as detailed above. The difference in the specialization is the upper level computer science courses. Students must fulfill their computer science upper level course requirements from at least 3 areas.[1]

Students are required to take:

| Course | Title | Credits |
|---|---|---|
| CMSC320 | Introduction to Data Science | 3 |
| CMSC422 | Introduction to Machine Learning | 3 |
| CMSC424 | Database Design | 3 |
| Select one of the following: | | 3 |
| CMSC420 | Advanced Data Structures | |
| CMSC421 | Introduction to Artificial Intelligence | |
| CMSC423 | Bioinformatic Algorithms, Databases, and Tools | |
| CMSC425 | Game Programming | |
| CMSC426 | Computer Vision | |
| CMSC427 | Computer Graphics | |
| CMSC470 | Introduction to Natural Language Processing | |
| Select one of the following: | | |
| CMSC451 | Design and Analysis of Computer Algorithms | |
| CMSC454 | Algorithms for Data Science | |
| CMSC460 | Computational Methods | |
| Select two of the following: | | 6-7 |
| CMSC411 | Computer Systems Architecture | |
| CMSC412 | Operating Systems | |
| CMSC414 | Computer and Network Security | |
| CMSC417 | Computer Networks | |
| CMSC430 | Introduction to Compilers | |
| CMSC433 | Programming Language Technologies and Paradigms | |
| CMSC434 | Introduction to Human-Computer Interaction | |

| | | |
|---|---|---|
| CMSC435 | Software Engineering | |
| **Total Credits** | | **18-19** |

[1] Courses that fall within each area are listed in the General Track degree requirements. The five areas are: Area 1: Systems, Area 2: Information Processing, Area 3: Software Engineering and Programming Languages, Area 4: Theory, and Area 5: Numerical Analysis.

# Machine Learning Specialization

Students looking to pursue the machine learning specialization are required to complete the lower level courses (MATH140, MATH141, CMSC131, CMSC132, CMSC216, CMSC250), the additional required courses (CMSC330, CMSC351, STAT4xx beyond MATH141, and MATH240), and the upper level concentration requirements as detailed above. The difference in the specialization is the upper level computer science courses. Students must fulfill their computer science upper level course requirements from at least 3 areas.[1]

Students are required to take:

| Course | Title | Credits |
|---|---|---|
| CMSC320 | Introduction to Data Science | 3 |
| CMSC421 | Introduction to Artificial Intelligence | 3 |
| CMSC422 | Introduction to Machine Learning | 3 |
| Select two of the following: | | 6 |
| CMSC426 | Computer Vision | |
| CMSC/AMSC460 | Computational Methods | |
| or CMSC/AMSC466 | Introduction to Numerical Analysis I | |
| or MATH401 | Applications of Linear Algebra | |
| CMSC470 | Introduction to Natural Language Processing | |
| CMSC472 | Introduction to Deep Learning | |
| CMSC473 | Capstone in Machine Learning | |
| CMSC474 | Introduction to Computational Game Theory | |
| CMSC476 | | |
| Upper Level Elective Courses: six credits from CMSC3XX or CMSC4XX excluding CMSC330 and CMSC351 [1] | | 6 |
| **Total Credits** | | **21** |

[1] Students may fulfill an area requirement under the Upper Level Elective Courses requirement. Courses that fall within each area are listed in the General Track degree requirements. The five areas are: Area 1: Systems, Area 2: Information Processing, Area 3: Software Engineering and Programming Languages, Area 4: Theory, and Area 5: Numerical Analysis.

# Quantum Information Specialization

Students looking to pursue the quantum information specialization are required to complete the lower level courses (MATH140, MATH141, CMSC131, CMSC132, CMSC216, CMSC250), the additional required courses (CMSC330, CMSC351, STAT4xx beyond MATH141, and MATH240), and the upper level concentration requirements as detailed above. The difference in the specialization is the upper level computer science courses. Students must fulfill their computer science upper level course requirements from at least 3 areas.[1]

Students are required to take:

| Course | Title | Credits |
|---|---|---|
| CMSC457 | Introduction to Quantum Computing | 3 |
| PHYS467 | Introduction to Quantum Technology | 3 |
| **Select four 400 level courses from at least two of the following areas (excluding Area 4: Theory) with no more than three courses in a given area:** | | **12-13** |
| Area 1: Systems | | |
| CMSC411 | Computer Systems Architecture | |
| CMSC412 | Operating Systems | |
| CMSC414 | Computer and Network Security | |
| CMSC416 | Introduction to Parallel Computing | |
| CMSC417 | Computer Networks | |
| Area 2: Information Processing | | |
| CMSC420 | Advanced Data Structures | |
| CMSC421 | Introduction to Artificial Intelligence | |
| CMSC422 | Introduction to Machine Learning | |
| CMSC423 | Bioinformatic Algorithms, Databases, and Tools | |
| CMSC424 | Database Design | |
| CMSC426 | Computer Vision | |
| CMSC427 | Computer Graphics | |
| CMSC470 | Introduction to Natural Language Processing | |
| Area 3: Software Engineering and Programming Languages | | |
| CMSC430 | Introduction to Compilers | |
| CMSC433 | Programming Language Technologies and Paradigms | |
| CMSC434 | Introduction to Human-Computer Interaction | |
| CMSC435 | Software Engineering | |
| CMSC436 | Programming Handheld Systems | |
| Area 4: Theory | | |
| CMSC451 | Design and Analysis of Computer Algorithms | |
| CMSC452 | Elementary Theory of Computation | |
| CMSC456 | Cryptography | |
| Area 5: Numerical Analysis | | |
| CMSC460 | Computational Methods | |
| or CMSC466 | Introduction to Numerical Analysis I | |
| **Upper Level Elective Courses: three credits from CMSC3XX or CMSC4XX excluding CMSC330 and CMSC351** | | **3** |
| **Total Credits** | | **21-22** |

[1] Students may fulfill an area requirement under the Upper Level Elective Courses requirement. Courses that fall within each area are listed in the General Track degree requirements. The five areas are: Area 1: Systems, Area 2: Information Processing, Area 3: Software Engineering and Programming Languages, Area 4: Theory, and Area 5: Numerical Analysis.

# GRADUATION PLANS

Click here (https://cmns.umd.edu/undergraduate/advising-academic-planning/academic-planning/four-year-plans/four-year-plans-gened/) for roadmaps for graduation plans in the College of Computer, Mathematical, and Natural Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Computer Science Minor

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Phone: 301-405-2672
ugrad@cs.umd.edu
http://cs.umd.edu

**Program Director:** David Mount, Ph.D.

The purpose of the minor in Computer Science is not only to give students a strong foundation in and understanding of algorithmic reasoning, problem solving methods involving computers and computation, as well as a solid base to help students adapt to future changes in technology, but to complement and enhance any student's major program of study.

The Computer Science minor is selective, and students must meet the same entrance requirements as the Computer Science major. Information on how to apply for the minor can be found at http://undergrad.cs.umd.edu/future/.

## REQUIREMENTS

The minor in Computer Science consists of 15-24 credits; all courses must be completed with a grade of "C-" or better. MATH140 and CMSC131 are pre-requisites for entrance into the curriculum for the minor.

| Course | Title | Credits |
|---|---|---|
| **Requirements** | | |
| CMSC132 | Object-Oriented Programming II [1] | 4 |
| CMSC216 | Introduction to Computer Systems [1] | 4 |
| CMSC250 | Discrete Structures [1] | 4 |
| CMSC330 | Organization of Programming Languages | 3 |
| CMSC351 | Algorithms | 3 |
| Select two of the following: [2] | | 6 |
| CMSC411 | Computer Systems Architecture | |
| CMSC412 | Operating Systems | |
| CMSC414 | Computer and Network Security | |
| CMSC416 | Introduction to Parallel Computing | |
| CMSC417 | Computer Networks | |
| CMSC420 | Advanced Data Structures | |
| CMSC421 | Introduction to Artificial Intelligence | |
| CMSC422 | Introduction to Machine Learning | |
| CMSC423 | Bioinformatic Algorithms, Databases, and Tools | |
| CMSC424 | Database Design | |
| CMSC426 | Computer Vision | |
| CMSC427 | Computer Graphics | |
| CMSC430 | Introduction to Compilers | |
| CMSC433 | Programming Language Technologies and Paradigms | |
| CMSC434 | Introduction to Human-Computer Interaction | |
| CMSC435 | Software Engineering | |
| CMSC436 | Programming Handheld Systems | |
| CMSC451 | Design and Analysis of Computer Algorithms | |
| CMSC452 | Elementary Theory of Computation | |
| CMSC454 | Algorithms for Data Science | |
| CMSC456 | Cryptography | |
| CMSC457 | Introduction to Quantum Computing | |
| CMSC460 | Computational Methods | |
| CMSC466 | Introduction to Numerical Analysis I | |
| CMSC470 | Introduction to Natural Language Processing | |
| CMSC471 | Introduction to Data Visualization | |
| CMSC472 | Introduction to Deep Learning | |
| CMSC474 | Introduction to Computational Game Theory | |
| **Total Credits** | | **24** |

[1] Or acceptable score on the CMSC exemption exam.
[2] Note: some of these classes variously have MATH240 or MATH241 as prerequisites.

**Notes:**

- Students who satisfy all three of CMSC132, CMSC216 and CMSC250 by exemption exam shall take one additional 400 level class from the approved list. This obligation is in addition to all other minor requirements.
- With prior permission of the Undergraduate Director, and at his/her discretion, at most one section (3 credits) of CMSC498, Independent Study, may substitute for one of the two core CS classes at the 400 level. This provision is intended to allow students to pursue unexpected opportunities for study of interdisciplinary topics having a substantial computational component complementing their major.
- Course combinations:
  - Students may not use more than one of CMSC460 or CMSC466 toward the minor.

# Data Science Minor (CMSC)

**Program Director:** Wojciech Czaja, Ph.D.

The Data Science minor will offer a rigorous training in this interdisciplinary field, which combines scientific methods, processes, and algorithms to extract knowledge from data and the information it contains. Students will complete a required set of DATA courses which focus on fundamental areas of computer science, mathematics, and statistics, as well as ethics and best practices in data science. The scientific method introduced in these courses is what separates modern Data Science from broadly understood data analytics. The proposed program integrates these aspects with an in-depth look into critical ethical and privacy aspects of the modern data-dependent world. This combination creates a unique undergraduate offering and it provides students with necessary tools for a broad range of careers, ranging from private sector employment, to government and research.

Restriction: Students in the Mathematics major Statistics specialization (1701S) major, the Computer Science major Data Science specialization (0701B), or the Computer Science major Machine Learning specialization (0701F) may not enroll in the Data Science minor.

## Program Learning Outcomes

1. Apply modern data science techniques arising in the fields of computer science and mathematics to solve real-world problems, with a special emphasis on problems arising in the context of biomedical, natural and physical sciences.
2. Demonstrate critical thinking and innovation skills in the design of data science techniques as applied to data curation, analysis, modeling, visualization, or decision making, while understanding how to identify and express limitations in the application of models as analytic and predictive tools.
3. Communicate and collaborate in a variety of professional contexts and in diverse environments, demonstrating the understanding of principles of effective data visualization design for data communication, as well as communicating effectively with diverse audiences.
4. Understand the human and ethical implications of data science and integrate that knowledge into the design and execution of their work by applying relevant ethical and social standards to: demonstrate understanding of privacy issues; analyze and discuss social impacts in the realm of data science; advocate for ethical decision making in the use of data.

## REQUIREMENTS

A grade of C- or better is required for all DATA minor course requirements. Students must take DATA100, STAT100, MATH135, or any 400-level STAT course as a prerequisite for the minor.

| Course | Title | Credits |
|---|---|---|
| DATA110 | Applications of R for Data Science | 1 |
| DATA120 | Python Programming for Data Science (Python Programming for Data Science) | 1 |
| DATA200 | (Best Practices for Big Data Collection and Analysis) | 3 |
| DATA250 | (Discrete Mathematics) [1] | 4 |
| DATA320 | (Introduction to Data Science) [2] | 3 |
| DATA350 | (Data Visualization and Presentation) | 3 |
| DATA400 | Applied Probability and Statistics I [3] | 3 |
| **Total Credits** | | **18** |

1 DATA250 can be replaced by CMSC250 and (MATH240, MATH341 or MATH461)
2 DATA320 can be replaced by CMSC320
3 DATA400 can be replaced by STAT400, STAT410 or ENEE324

Course Prerequisite: MATH141 is a prerequisite for some of the courses in this program.

No more than 2 courses for the minor in Data Science may be taken at an institution other than the University of Maryland, College Park.

# Immersive Media Design Major (CMSC)

**Program Director:** Roger D. Eastman, Ph.D.

The Immersive Media Design major is jointly offered by the Departments of Computer Science in the College of Computer, Mathematical, and Natural Sciences and Art in the College of Arts and Humanities.

Through this unique cross-campus alliance of expert faculty members and resources at the University of Maryland, the Immersive Media Design major provides the scientific and scholarly foundations needed to advance the extraordinary potential of new and emerging forms of digital media. These new forms move beyond the usual flatscreen of laptops and desks to immerse the user in new and complex virtual environments, such as virtual reality, augmented reality, projective domes and spaces, interactive installations and sculptures, and tangible computing.

Mastering these new media requires knowledge of technology and art. Immersive Media Design students will complete multiple collaborative studio courses in which they collaborate on teams to get hands-on experience and mentoring in building immersive media works, preparing them to work in fields as diverse as health care, education, industrial training and design, marketing and advertising, art, and more.

The major has two different tracks of academic study. Track One (Computing-Creative Coders) focuses on the implementation and creation of computer science methods used in the creation of immersive media. Track Two (Art-Emerging Creatives) focuses on content creation and concept exploration from an aesthetic and artistic standpoint. Students who complete Track One will receive a B.S. in Immersive Media Design. Students who complete Track Two will receive a B.A. in Immersive Media Design.

## Admission to the Major

The Immersive Media Design major is a Limited Enrollment Program. Please see the admission requirements and procedures at http://lep.umd.edu.

## Program Learning Outcomes

1. Technical proficiency, skill, and contextual knowledge of immersive media technologies, products, and applications so as to produce physical and digital works that are technically proficient, aesthetically engaging, and which demonstrate conceptual sophistication.
2. Deep learned cross-disciplinary problem-solving and collaborative skills in both technical and creative arenas.
3. Knowledge and proficiency in user-centered practices as they pertain to the development and application of immersive media projects.
4. Capacity to adapt to new technologies, concepts and processes as well as anticipate new technical and conceptual developments in this emerging field.
5. Computing track: Technical proficiency in the development of coding structures and algorithms central to the practices of immersive media.
6. Computing track: Fluency in the methodologies of computer graphics programing for real-time and AR/VR contexts.
7. Computing track: Ability to create and implement user-facing tools and algorithms for immersive media design.
8. Computing track: Ability to critically evaluate and apply relevant areas of immersive media scholarship.
9. Computing track: Ability to anticipate and adapt to the advent of new technological concepts, methods and practices in the field.
10. Emerging Creatives track: Ability to effectively communicate ideas and concepts visually through the use of immersive media conventions.

11. Emerging Creatives track: Technical proficiency in common methods of content creation for immersive media such as creative coding, digital fabrication, physical computing, and 3-D modeling.
12. Emerging Creatives track: Ability to critically evaluate works of creative technology in terms of their formal, conceptual, historical and social impacts.
13. Emerging Creatives track: Ability to appropriately couple new technologies with traditional media in the creation of tangible immersive media projects.
14. Emerging Creatives track: Ability to market and promote ones work through portfolio development and business planning.

# REQUIREMENTS

Immersive Media Design majors complete a rigorous set of courses in Art (ARTT), Computer Science (CMSC) as well as Immersive Media (IMDM). The courses differ by track. Students in Track 1 (Computing) take introductory courses at the core of the Computer Science major, a common set of ARTT courses, and the IMDM sequence. Students in Track 2 (Art) take the core of the Art major, a set of introductory computing courses, and the IMDM sequence.

For students in Track 1 who are transferring to UMD, the Computer Science Department offers exemption exams for the required courses CMSC131, CMSC132, CMSC216 and CMSC250. Students who have had CS courses prior to starting at Maryland are encouraged to schedule and take exemption exams. These courses are not required for Track 2.

## Computing Track

| Course | Title | Credits |
|---|---|---|
| ENGL Elective (Choose one of the following): | | 3 |
| ENGL143 | Visualizing Knowledge: From Data to Images | |
| ENGL245 | Film Form and Culture | |
| ENGL255 | Literature of Science and Technology | |
| ENGL290 | Introduction to Digital Studies | |
| ENGL294 | Persuasion and Cleverness in Social Media | |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| CMSC131 | Object-Oriented Programming I | 4 |
| CMSC132 | Object-Oriented Programming II | 4 |
| CMSC216 | Introduction to Computer Systems | 4 |
| CMSC250 | Discrete Structures | 4 |
| CMSC330 | Organization of Programming Languages | 3 |
| CMSC351 | Algorithms | 3 |
| Major Elective: CMSC 4xx (Graphics Programming) | | 3 |
| CMSC Elective: CMSC 4xx (Graphics Programming) | | 3 |
| ARTT100 | Two-Dimensional Design Fundamentals | 3 |
| ARTT200 | Three-Dimensional Art Fundamentals | 3 |
| ARTT255 | Introduction to Digital Art and Design Processes | 3 |
| Major Elective: ARTT37x/47x (Digital Media) | | 3 |
| IMDM101 | Introduction to Immersive Media | 3 |
| IMDM150 | Digital Media Theory and Culture | 3 |
| IMDM227 | Introduction to Computational Media | 3 |
| IMDM290 | Collaborative Studio I: Image + Time | 3 |
| IMDM327 | Computational Virtual Reality (Augmented and Virtual Reality) | 3 |
| IMDM390 | Collaborative Studio II: Experiential Computing | 3 |
| IMDM490 | Senior Capstone I (Capstone I) | 4 |
| IMDM491 | Senior Capstone II (Capstone II) | 4 |
| **Total Credits** | | **77** |

## Emerging Creatives Track

| Course | Title | Credits |
|---|---|---|
| ENGL Elective (Choose one of the following): | | 3 |
| ENGL143 | Visualizing Knowledge: From Data to Images | |
| ENGL245 | Film Form and Culture | |
| ENGL255 | Literature of Science and Technology | |
| ENGL290 | Introduction to Digital Studies | |
| ENGL294 | Persuasion and Cleverness in Social Media | |
| MATH115 | Precalculus | 3 |
| CMSC122 | Introduction to Computer Programming via the Web | 3 |
| ARTT100 | Two-Dimensional Design Fundamentals | 3 |
| ARTT110 | Elements of Drawing I | 3 |
| ARTT200 | Three-Dimensional Art Fundamentals | 3 |
| ARTT210 | Elements of Drawing II | 3 |
| ARTT255 | Introduction to Digital Art and Design Processes | 3 |
| ARTT370<br>or ARTT371 | Elements of Digital Media | 3 |
| ARTT47X | (Advanced Digital Media Choice: 479a/c/d/e) | 3 |
| IMDM101 | Introduction to Immersive Media | 3 |
| IMDM127 | Creative Coding for Digital Media | 3 |
| IMDM150 | Digital Media Theory and Culture | 3 |
| IMDM227 | Introduction to Computational Media | 3 |
| IMDM290 | Collaborative Studio I: Image + Time (Collaborative Studi I - Image + Time) | 3 |
| IMDM350 | Advanced Digital Media Theory | 3 |
| IMDM390 | Collaborative Studio II: Experiential Computing | 3 |
| IMDM490 | Senior Capstone I (Capstone I) | 4 |
| IMDM491 | Senior Capstone II (Capstone II) | 4 |
| **Total Credits** | | **59** |

# GRADUATION PLANS

Click here (https://cmns.umd.edu/undergraduate/advising-academic-planning/academic-planning/four-year-plans/four-year-plans-gened/) for roadmaps for graduation plans in the College of Computer, Mathematical, and Natural Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# ADVISING

## Prospective Students

Immersive Media Design is able to work with current, and prospective, University of Maryland students who may be interested in the program

to see if the program meets their personal, academic, and career goals. Students with questions should email imd@umd.edu.

### Current Students

Students are assigned an academic advisor after the schedule adjustment period. Prior to being assigned an advisor students are encouraged to email imd@umd.edu with any questions, comments, or concerns. After a student is assigned an academic advisor within Immersive Media Design, they should email their assigned advisor. The assigned advisor will work with students throughout their time in Immersive Media Design from their first-year through graduation. All students in Immersive Media Design are required to meet with their assigned academic advisor every semester. Students make advising appointments via their TerpEngage Community (https://terpengage.umd.edu/community/s/) portal.
Students pursuing the Bachelor of Arts are required to meet with an advisor within the College of Arts and Humanities. To learn more, please visit their advising webpage (https://arhu.umd.edu/academics/advising/).

### Academic Plans

- Computing B.S. (https://imd.umd.edu/sites/default/files/2023-05/2305%20IMDM%20Computing%20Graduation%20Plan.pdf)
- Emerging Creatives B.A. (https://imd.umd.edu/sites/default/files/2023-05/2305%20IMDM%20Emerging%20Creatives%20Graduation%20Plan.pdf)

# Robotics and Autonomous Systems Minor (CMSC)

**Center Director:** Derek Paley, Ph.D.

For any questions, please contact robotics-minor@umd.edu.

The Robotics and Autonomous Systems (RAS) minor is open to students majoring in Aerospace Engineering, Electrical and Computer Engineering, Mechanical Engineering, and Computer Science. The minor takes a multidisciplinary approach to robotics in which students gain knowledge about the design, control, programming, and integration of robotics and autonomous systems. With an emphasis on hands-on experiences, students will gain practical skills through coursework, group projects, and research. Students will have the opportunity to participate as peer mentors and tutors. The minor program will also include regular interactions with academic, corporate, and/or governmental leaders in robotics, who will serve as both mentors and professional contacts.

## Student Learning Outcomes

1. Students will demonstrate the ability to apply advanced technical skills required to approach and resolve problems in the Robotics and Autonomous System (RAS) through upper-level RAS-related coursework in computer science and engineering disciplines.
2. Students will be able to apply the broad interdisciplinary aspects of RAS, such as the design, control, programming, and integration of complex robotic systems.
3. Students will obtain hands-on experience and demonstrate problem-solving skills in robotics through advanced coursework, experiential learning, and research.
4. Students will gain a sophisticated understanding of the range of professional opportunities available in RAS as a result of first-hand interactions with RAS faculty and professionals.

# REQUIREMENTS

## Prerequisites

| Course | Title | Credits |
|---|---|---|
| **Robotics and Autonomous Systems (RAS) Minor Prerequisites** | | |
| MATH246 | Differential Equations for Scientists and Engineers | |
| or ENES221 | Dynamics | |
| One of the following: | | |
| CMSC131 | Object-Oriented Programming I | |
| ENME202 | Computing Fundamentals for Engineers | |
| ENAE202 | Computing Fundamentals for Engineers | |
| ENEE150 | Intermediate Programming Concepts for Engineers | |

## Requirements

A minimum grade of C- or better is required for all minor and all prerequisite courses. A maximum of 2 courses may be used to satisfy the requirements of both a major and a minor.

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | **12** |
| ENME480 | Introduction to Robotics | |
| ENAE450 | Robotics Programming | |
| ENEE467 | Robotics Project Laboratory | |
| CMSC477 | Robotics Perception and Planning | |
| **Supporting Math Course (Required. Select one course. Must be completed prior to enrollment in CMSC477)** [1] | | **3-4** |
| MATH240 | Introduction to Linear Algebra | |
| MATH340 | Multivariable Calculus, Linear Algebra and Differential Equations I (Honors) | |
| MATH341 | Multivariable Calculus, Linear Algebra, Differential Equations II (Honors) | |
| MATH461 | Linear Algebra for Scientists and Engineers | |
| ENEE290 | Introduction to Differential Equations and Linear Algebra for Engineers | |
| **Electives (select two courses):** | | **6** |
| Course options will depend on the student's academic major and being able to meet course requirements/restrictions set by each Department. Other electives may be available. Contact minor advisor for assistance. | | |
| ENME400 | Machine Design | |
| ENME410 | Design Optimization | |
| ENME413 | Bio-Inspired Robotics | |
| ENME435 | Remote Sensing Instrumentation | |
| ENME441 | Mechatronics and the Internet of Things | |
| ENME461 | Control Systems Laboratory | |
| ENME467 | Engineering for Social Change | |
| or ENES467 | Engineering for Social Change | |
| ENME444 | Assistive Robotics | |
| ENME476 | Mircoelectromechanical Systems (MEMS) I | |
| ENEE440 | Microprocessors | |
| ENEE460 | Control Systems | |

| | |
|---|---|
| ENEE461 | Control Systems Laboratory |
| ENEE425 | Digital Signal Processing |
| ENEE426 | Communication Networks |
| ENEE408 | Capstone Design Project (ENEE408I Capstone Autonomous Robotics) |
| ENAE380 | Flight Software Systems |
| ENAE403 | Aircraft Flight Dynamics |
| ENAE432 | Control of Aerospace Systems |
| ENAE441 | Space Navigation and Guidance |
| ENAE488 | Topics in Aerospace Engineering (ENAE488O Introduction to Autonomous Multi-Robot Swarms) |
| CMSC421 | Introduction to Artificial Intelligence |
| CMSC422 | Introduction to Machine Learning |
| CMSC426 | Computer Vision |
| CMSC427 | Computer Graphics |
| CMSC451 | Design and Analysis of Computer Algorithms |
| CMSC498 | Selected Topics in Computer Science (CMSC498E Robotics) |
| **Total Credits** | **21-22** |

[1] Students may waive this requirement if they complete the course for another minor or major.

# Entomology

**College of Computer, Mathematical, & Natural Sciences**
4112 Plant Sciences Building
Phone: 301-405-3911
http://entomology.umd.edu

Research, teaching, and extension have been the backbone of the Department of Entomology for more than 100 years. Our faculty, students, and post-doctoral fellows remain committed to these three areas, in addition to outreach and public service. We maintain our historical focus on insects and their relatives, but the department's interests also span a diversity of subdisciplines, including ecology, aquatic biology, molecular and developmental biology, genetics, biological control of insects and weeds, systematics, evolutionary biology, integrated pest management, toxicology, and insect pathology.

Undergraduate students interested in Entomology typically major in one of the specializations within the Biological Sciences Program (p. 318). Interested students should contact the Entomology Director of Undergraduate Studies for information on pursuing a career in Entomology.

The Department of Entomology faculty coordinate and advise students in the following Biological Sciences Program area:

- Biological Sciences: General Biology (GENB) *Last names that begin with the letters A through M*

The requirements for the Biological Sciences major can be found here (p. 319).

# PROGRAMS

## Majors

- Biological Sciences (p. 318) (General Biology-GENB) *Last names A-M*

## Minors

- Entomology Minor (p. 341)
- Paleobiology Minor (p. 349) (shared jointly with the Geology department)

# ADVISING

The Department of Entomology faculty coordinate and advise students in the following areas:

- Biological Sciences major: General Biology (GENB) *Last names that begin with the letters A through M*
- Entomology minor: Biological Sciences (BSCI) and students in related majors
- Paleobiology minor: Shared jointly with the Geology department

Contact the Department of Entomology (301-405-3911) for information about advising or to determine the name of your advisor. To schedule an appointment with your advisor or the Entomology Director of Undergraduate Studies, contact them directly through the Entomology Undergraduate page (https://entomology.umd.edu/undergraduate.html).

For advising on other Biological Sciences Program specializations, see the Biological Sciences Major (p. 318) listing in this catalog.

Students interested in Entomology major in many different programs but would find one of the specializations offered by the Biological Sciences Program (p. 318) to be most appropriate. They should also consider adding the Entomology minor. Students may contact the Entomology Director of Undergraduate Studies for additional information on their academic program and on pursuing a career in Entomology.

# OPPORTUNITIES

## Undergraduate Research Experiences

Students can engage in laboratory and field research with Entomology faculty. Contact the Entomology Director of Undergraduate Students for information on opportunities to participate.

## Honors Program

The Entomology Honors Program provides the opportunity for highly motivated and academically qualified undergraduates to engage in original, independent research under the guidance of an Entomology faculty mentor. Participation in the program requires:

1. junior standing (including at least twelve credits within the major),
2. a minimum overall GPA and major courses GPA of 3.2, and
3. a Department of Entomology faculty member who has agreed to serve as a mentor.

Contact the Entomology Honors Director, Dr. Karin Burghardt (kburghar@umd.edu) for more information. Participants in the Entomology Honors Program are eligible for the Ernest N. Cory Undergraduate Scholarship.

# Entomology Minor

**Program Director:** David Hawthorne, Ph.D.

The Entomology minor will provide students with a broad understanding of the form and function of insects, their interactions with people and society, and their role as model species for fundamental and applied research. It is intended for students with an interest in insects and their relatives, whether from professional or avocational perspectives.

## Program Learning Outcomes

1. Develop a solid foundation on the structure and function of insects and their relatives within an evolutionary context, including the ability to identify orders and common families of arthropods.
2. Comprehend the diversity of insect species and their ecological roles leading to beneficial and injurious effects on human society and economy.
3. Understand and apply the use of insects as models for scientific endeavors, such as developmental biology, genetics, pest management, and population ecology.
4. Integrate knowledge of insects within a specialized field of science.
5. Understand the need to conserve and restore populations of insects in response to global issues such as biodiversity loss, climate change, food security, and invasive species.

## REQUIREMENTS

The minor requires a minimum of 15 course credits, with at least 9 credits at the upper level. No more than 2 courses can count towards both the minor and major.

**Required Course:**

| Course | Title | Credits |
|---|---|---|
| BSCI337 | Biology of Insects | 4 |

**Choose one course from Advanced Entomology:**

| Course | Title | Credits |
|---|---|---|
| BSCI467 | Freshwater Biology | 4 |
| BSCI480 | Arthropod Form and Function | 4 |
| BSCI481 | Insect Diversity and Classification | 4 |
| BSCI483 | Insects, Pathogens, and Public Health | 3 |
| BSCI487 | IPM: Science-Based Decision Making for Sustainable Pest Management | 4 |
| BSCI494 | Animal-Plant Interactions | 3 |
| BSCI497 | Insect Pests of Ornamentals and Turf | 4 |

**Choose a total of 2-3 courses from two of the following areas (for BSCI majors, one course must be from III-IV):**

I. Advanced Biology

| Course | Title | Credits |
|---|---|---|
| BSCI361 | Principles of Ecology | 4 |
| BSCI363 | The Biology of Conservation and Extinction | 3 |
| BSCI370 | Principles of Evolution | 3 |
| BSCI392 & BSCI393 | Biology of Extinct Animals and Biology of Extinct Animals Laboratory | 4 |
| BSCI410 | Molecular Genetics | 3 |
| BSCI430 | Developmental Biology | 3 |

II. Pollination Biology

| Course | Title | Credits |
|---|---|---|
| BSCI121 | | 2 |
| BSCI126 | Pollinators in Crisis | 3 |

III. Plant Sciences

| Course | Title | Credits |
|---|---|---|
| PLSC205 | Introduction to Turf Science and Management | 4 |
| PLSC226 | Plant Diversity | 4 |
| PLSC253 | Woody Plants for Mid-Atlantic Landscapes I | 3 |
| PLSC254 | Woody Plants for Mid-Atlantic Landscape II | 3 |
| PLSC405 | Agroecology | 3 |
| PLSC407 | | 3 |
| PLSC420 | Principles of Plant Pathology | 4 |
| PLSC453 | Weed Science | 3 |

IV. Environmental Sciences:

| Course | Title | Credits |
|---|---|---|
| ENST233 | Introduction to Environmental Health | 4 |
| ENST333 | Ecosystem Health and Protection | 3 |
| ENST334 | Environmental Toxicology | 3 |
| ENST360 | Ecosystem Ecology | 4 |
| ENST403 | Invasive Species Ecology | 3 |
| ENST410 | Ecosystem Services: An Integrated Analysis | 3 |
| ENST436 | Emerging Environmental Threats | 3 |
| ENST441 | Sustainable Agriculture | 3 |
| ENST445 | Ecological Risk Assessment | 3 |
| ENST450 | Wetland Ecology | 3 |

Depending on the optional courses, a total of 15-17 credits are required. All courses presented for the minor must be passed with a grade of C- or better.

# Paleobiology Minor (ENTM)

**Program Director:** John Merck, Ph.D.

The minor in Paleobiology will provide students with a broad understanding of the application of the methods of biology and geology to the study of the history of life, and develop students' appreciation of how issues in the study of paleobiology connect with larger trends in those sciences. It is intended for all students with an interest in the study of the history of life, be it professional or avocational.

## REQUIREMENTS

Depending on optional course(s) taken, a total of 21 – 24 credits are required (see prerequisites (p. 342)). All courses presented for the minor must be passed with a grade of C- or better.

| Course | Title | Credits |
|---|---|---|
| **Fundamental Courses** | | |
| BSCI160 & BSCI161 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab | 4 |

| | | |
|---|---|---|
| One of the following: | | 4 |
| GEOL100 & GEOL110 | Physical Geology and Physical Geology Laboratory | |
| GEOL120 & GEOL110 | Environmental Geology and Physical Geology Laboratory | |
| **Introductory Life History or Organismal Biology** | | |
| One of the following: | | 3-4 |
| GEOL102 | Historical Geology | |
| GEOL104 | Dinosaurs: A Natural History | |
| GEOL204 | Dinosaurs, Early Humans, Ancestors, and Evolution; The Fossil Record of Vanished Worlds of the Prehistoric Past | |
| BSCI207 | Principles of Biology III - Organismal Biology | |
| BSCI222 | Principles of Genetics | |
| **Upper-Level Paleobiology** | | |
| One of the following: | | 4 |
| BSCI333/ GEOL331 | Principles of Paleontology | |
| BSCI392 & BSCI393 | Biology of Extinct Animals and Biology of Extinct Animals Laboratory | |
| **Electives** | | |
| Two courses (one from Biology and one from Geology) selected from the following: | | 6-8 |
| BSCI333/ GEOL331 | Principles of Paleontology (if not taken to satisfy the requirement above) | |
| BSCI334 | Mammalogy | |
| BSCI361 | Principles of Ecology | |
| BSCI363 | The Biology of Conservation and Extinction | |
| BSCI392 & BSCI393 | Biology of Extinct Animals and Biology of Extinct Animals Laboratory (if not taken to satisfy the requirement above) | |
| BSCI370 | Principles of Evolution | |
| BSCI399 | Biology Department Research [1] | |
| GEOL342 | Sedimentation and Stratigraphy | |
| GEOL431 | Vertebrate Paleobiology | |
| GEOL436 | Principles of Biogeochemistry | |
| GEOL437 | Global Climate Change: Past and Present | |
| GEOL499 | Special Problems in Geology | |
| Or another appropriate biology or geology course approved in advance by the Entomology or Geology advisor | | |
| **Total Credits** | | **21-24** |

[1] The Paleobiology Minor requires 3 cumulative credits of BSCI399 to count as elective. Research topic must be approved by GEOL or ENTM advisor.

# Prerequisites

## Required Courses

The following required courses have prerequisites (as indicated in the course description):

- BSCI207 Principles of Biology III - Organismal Biology
- BSCI222 Principles of Genetics
- GEOL102 Historical Geology
- BSCI333 Principles of Paleontology or GEOL331 (cross-listed)
- BSCI392 Biology of Extinct Animals and BSCI393 (lab)

Of these, only BSCI207 and BSCI222 have supporting prerequisites not already required for the minor.

## Optional Courses

The following optional courses have prerequisites (as indicated in the course description):

- BSCI333 Principles of Paleontology or GEOL331 (cross-listed)
- BSCI334 Mammalogy
- BSCI361 Principles of Ecology
- BSCI363 The Biology of Conservation and Extinction
- BSCI392 Biology of Extinct Animals and BSCI393 (lab)
- BSCI370 Principles of Evolution
- GEOL342 Sedimentation and Stratigraphy
- GEOL431 Vertebrate Paleobiology
- GEOL436 Principles of Biogeochemistry
- GEOL437 Global Climate Change: Past and Present

Of these, only BSCI334, BSCI361, GEOL342, GEOL436, and GEOL437 have supporting prerequisites not already required for the minor.

# ADVISING

Advising is not mandatory for the Paleobiology Minor, however interested students are urged to consult with the Geology or Entomology Director of Undergraduate Studies prior to declaring the minor to discuss academic planning and logistics. Contact information is available at the Geology web page http://www.geol.umd.edu and the Entomology web page http://entomology.umd.edu.

# Geology

**College of Computer, Mathematical & Natural Sciences**
1120 Geology Building
Phone: 301-405-4082
http://geol.umd.edu

The mission of the Department of Geology is to provide high-quality undergraduate and graduate education; to achieve excellence in research; and, through outreach and service, to benefit society by effectively transmitting the products of research in geosciences.

# PROGRAMS

## Major

- Geology Major (p. 345)

## Minors

- Earth History Minor (p. 344)
- Earth Material Properties Minor (p. 344)
- Geochemistry Minor (p. 344)
- Geophysics Minor (p. 348)
- Hydrology Minor (p. 349)
- Paleobiology Minor (GEOL) (p. 349)

- Planetary Sciences Minor (GEOL) (p. 350)
- Surficial Geology Minor (p. 351)

# ADVISING

Geology majors in all tracks are required to receive mandatory semesterly advising prior to registration. Advising is performed by the Director of Undergraduate Studies or their designated faculty assistants. The Undergraduate Director routinely notifies majors of how to contact their advisors prior to semesterly advising. All advising inquiries should be directed to the Undergraduate Director.

Specific instructions for scheduling an advising appointment can be accessed through the departmental web page. These instructions apply to any meeting requests by majors, minors, and all interested students seeking information on a Department of Geology program.

# OPPORTUNITIES

## Undergraduate Research Experiences

The Professional, Secondary Education, and Geophysics tracks of the Geology major require students to complete a two-semester, six credit senior research thesis (GEOL393 and GEOL394), involving independent original geosciences research under the mentorship of a member of the faculty. Senior thesis students give presentations of proposals, progress, and final results to the entire department.

## Combined BS/MS in Geology

The Combined B.S./M.S. program is designed to permit a superior student to earn both the Bachelor's and the Master's degrees in as few as five years of study. Although designed to provide an integrated experience of undergraduate and graduate work, the combined B.S./M.S. program is not a course of study separate and distinct from the traditional B.S. and M.S. Students in the combined B.S./M.S. program will, at any given time, be either undergraduate or graduate students. The program provides the opportunity for a superior student to telescope these degrees by taking up to nine graduate credits (600-level or higher) while still an undergraduate and counting them toward both degrees. A grade of "B" or better must be earned in each of these courses. Under optimal circumstances, one might complete both degrees in five years. Actual completion time will vary depending on one's individual circumstances. The master's thesis may be a continuation of work begun as part of the undergraduate senior thesis.

Acceptance into the combined B.S./M.S. normally would occur after the end of the sophomore year. The minimum requirements for acceptance into this program are identical to those for the geology honors program: an overall GPA of at least 3.0 at the end of the sophomore year and a GPA of 3.0 or better in all courses required for the major. Interested eligible students must provide the following material to be considered:

1. At least three letters of recommendation. At least one must be from a prospective graduate advisor, who must outline the applicant's sources of potential funding.
2. An essay or statement of purpose.
3. An interview with the Undergraduate Honors Director and the Graduate Director.

Based on this, students may be provisionally accepted into the program. Students so accepted will be permitted to enroll in appropriate graduate-level courses. The combined B.S./M.S. program allows 9 credits of graduate courses (600-level or above) to be counted towards both the B.S. and M.S. degrees. A grade of "B" or better must be earned in each of these courses. Acceptance is provisional pending satisfaction of the following:

1. Completion of the undergraduate curriculum.
2. A GPA of 3.5 or better in GEOL393 and GEOL394.
3. Maintenance of a 3.0 overall GPA and a GPA of 3.0 or better in all courses required for the major.
4. Successful completion of the General GRE exam, usually taken during the fall term of the senior year.
5. Formal application and admission to the Graduate School. Your application for graduate admission is completely separate from your application to the combined B.S./M.S. Your participation in the combined B.S./M.S. as an undergraduate does not give you priority over other graduate applicants.

Upon enrollment as a graduate student, the participant may designate the graduate courses that should be counted toward both degrees.

## Honors Program

Admission to the Program will be by invitation of the Honors Committee, normally at the end of the sophomore year and normally will be extended to students with an overall GPA of 3.0 or better and a GPA of 3.0 or better in all courses required for the major.

Graduation with Honors normally requires completion of the curriculum, grades of B- and A- or better in GEOL393 and GEOL394 (i.e., grades for one semester must be at least an A-, and the second semester grade cannot fall below a B-), and maintenance of a 3.0 overall GPA and a GPA of 3.0 or better in all courses required for the major. Maintenance of a general GPA and GPA in geology major courses of 3.5 or above and a grade of A in both GEOL393 and GEOL394 will earn the distinction of Graduation with High Honors.

The curriculum for Honors in Geology follows the University Honors Program Track I: Thesis Option with a 15 credit minimum.

1. The requirement for upper division Honors courses will be met by a minimum of 9 hours as follows:
   a. GEOL497H and
   b. 6 credit hours from the following:
      i. a 3 credit hour graduate-level course approved by the Departmental Honors Committee
      ii. Honors Option project in a three or four credit hour upper-level course from the offerings in the Geology Department
      iii. no more than one Honors College seminar (3 credit hours) addressing a relevant topic in natural sciences. (Typically, this would include seminars offered by faculty in the College of Computer Mathematical and Natural Sciences). The Honors College seminar must be approved in advance by the departmental honors committee.

      The Honors Option Proposal must be approved by the departmental honors committee, the professor teaching the course and the Honors College. A proposal must be approved by the Department and submitted to the Honors College by the 10th day of class in the semester in which the course will be taken and the project completed.
2. The research and thesis requirement will be met by completion of GEOL393 and GEOL394 with grades meeting the criteria outlined above.

## Student Societies and Professional Organizations

Sigma Gamma Epsilon, National Honor Society for Earth Sciences, and the Geology Club.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Awards and Recognition

- Washington Gems & Mineral Scholarship
- Green Scholarship in Environmental Science and Policy
- Marc Lipella Memorial Scholarship

# Earth History Minor

**Geology (GEOL)**
1115 Geology Building
Phone: 301-405-4365
http://geol.umd.edu

**Program Director:** John Merck, Ph.D.

The undergraduate minor in Earth History recognizes concentrated study in this designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor.

See http://geol.umd.edu for more information.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| Select one of the following: | | 4 |
| GEOL100 & GEOL110 | Physical Geology and Physical Geology Laboratory | |
| GEOL120 & GEOL110 | Environmental Geology and Physical Geology Laboratory | |
| GEOL102 | Historical Geology | 4 |
| Select three of the following: | | 9-12 |
| GEOL331 | Principles of Paleontology | |
| GEOL341 | Structural Geology | |
| GEOL342 | Sedimentation and Stratigraphy | |
| GEOL436 | Principles of Biogeochemistry | |
| GEOL437 | Global Climate Change: Past and Present | |
| GEOL499 | Special Problems in Geology | |
| **Total Credits** | | **17-20** |

## ADVISING

Advising is not mandatory for the Earth History Minor, however interested students are urged to consult with the Geology Director of Undergraduate Studies prior to declaring the minor to discuss academic planning and logistics. Contact information is available at the Geology web page http://geol.umd.edu.

# Earth Material Properties Minor

**Geology (GEOL)**
1115 Geology Building
Phone: 301-405-4365
http://geol.umd.edu

**Program Director:** John Merck, Ph.D.

The undergraduate minor in Earth Material Properties recognizes concentrated study in this designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor.

See http://geol.umd.edu for more information.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Required** | | |
| Select one of the following: | | 4 |
| GEOL100 & GEOL110 | Physical Geology and Physical Geology Laboratory | |
| GEOL120 & GEOL110 | Environmental Geology and Physical Geology Laboratory | |
| GEOL322 | Mineralogy | 4 |
| Select three of the following: | | 10-12 |
| GEOL341 | Structural Geology | |
| GEOL423 | Optical Mineralogy | |
| GEOL443 | Petrology | |
| GEOL445 | High Temperature Geochemistry | |
| GEOL456 | Engineering Geology | |
| or GEOL457 | Seismology | |
| GEOL499 | Special Problems in Geology | |
| **Total Credits** | | **18-20** |

## ADVISING

Advising is not mandatory for the Earth Material Properties Minor, however interested students are urged to consult with the Geology Director of Undergraduate Studies prior to declaring the minor to discuss academic planning and logistics. Contact information is available at the Geology web page http://geol.umd.edu.

# Geochemistry Minor

**Geology (GEOL)**
1115 Geology Building
Phone: 301-405-4365
http://geol.umd.edu

**Program Director:** John Merck, Ph.D.

The undergraduate minor in Geochemistry recognizes concentrated study in this designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor.

See http://geol.umd.edu for more information.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Required** | | |
| Select one of the following: | | 4 |
| GEOL100 & GEOL110 | Physical Geology and Physical Geology Laboratory | |
| GEOL120 & GEOL110 | Environmental Geology and Physical Geology Laboratory | |
| GEOL322 | Mineralogy | 4 |
| Select one of the following: | | 4 |
| GEOL444 | Low Temperature Geochemistry | |
| or GEOL445 | High Temperature Geochemistry | |
| Select two of the following: | | 6-8 |
| GEOL435 | Environmental Geochemistry | |
| GEOL436 | Principles of Biogeochemistry | |
| GEOL443 | Petrology | |
| GEOL444 | Low Temperature Geochemistry [1] | |
| GEOL445 | High Temperature Geochemistry [1] | |
| GEOL471 | | |
| GEOL499 | Special Problems in Geology | |
| **Total Credits** | | **18-20** |

[1] If not used to satisfy requirement above

## ADVISING

Advising is not mandatory for the Geochemistry Minor, however interested students are urged to consult with the Geology Director of Undergraduate Studies prior to declaring the minor to discuss academic planning and logistics. Contact information is available at the Geology web page http://geol.umd.edu.

# Geology Major

**Program Director:** John Merck, Ph.D.

The Department of Geology offers three major tracks addressing key aspects of Geology - the science of Earth. In its broadest sense, geology focuses on the formation and subsequent modification of the planets, emphasizing planet Earth. Geologists study Earth's internal and surface structure and materials, history, and the chemical and physical processes acting within and on it using the principles of mathematics, physics, chemistry, and biology.

Geological sciences encompass all the physical, chemical, and biological aspects of Earth. Increasingly, geologists are taking a holistic approach in the collection and interpretation of data about Earth, which means that the wider context of the geological sciences is broad and diverse. In studying Earth as a system, geologists address geology and geophysics, hydrology, oceanography and marine science, atmospheric science, planetary science, and soil science. A major in any relevant discipline can lead to a satisfying career within the geological sciences. In general, graduate training is expected for advancement to the most rewarding positions and for academic employment.

Geology offers three major tracks:

- The Geology Professional Track is intended for students seeking to enter geosciences careers in private industry or public service, and who intend to pursue graduate degrees in geosciences.
- The Geology Geophysics Track is similarly intended for students seeking to enter careers in private industry or public service emphasizing the applications of physics to geosciences issues, and who intend to pursue graduate degrees in geophysics and related disciplines.
- The Earth and Environmental Sciences Track prepares students who do not plan, specifically, to become geologists but who plan to enter careers in fields for which geological information is foundational, including but not limited to science education, science journalism, environmental science, environmental law, and public policy.

## Program Objectives

Geologists are employed by governmental, industrial, and academic organizations. They work in exploration for new mineral and energy resources, as consultants on engineering and environmental projects, as teachers and researchers in universities, and in many other challenging positions. For many, the attraction of a career in geology is the ability to divide time between work in the field, the laboratory, and the office. Although the employment outlook within geology varies with the global economic climate, the long-range outlook is good. This is because our dwindling energy, mineral, and water resources, along with increasing concerns about natural hazards and environmental issues, present new challenges for geologists.

## Program Learning Outcomes

1. Demonstrate mastery in the design and execution of geosciences research.
2. Demonstrate effective communication in oral and written geosciences presentations.
3. Demonstrate broad knowledge of subject material in the principal disciplines of geosciences and understanding of the connections between them.
4. Demonstrate understanding of the application of geosciences knowledge in broader societal contexts.

## REQUIREMENTS

## Professional Track

Courses required for the Professional Track B.S. in Geology are listed below. Some courses require field trips for which students are expected to pay for room (if required) and board. Field camp is taken during the summer at institutions other than the University of Maryland, College Park, that offer camps approved by the department.

| Course | Title | Credits |
|---|---|---|
| **Required Geology Courses** | | |
| GEOL100 | Physical Geology | 3 |
| or GEOL120 | Environmental Geology | |

| | | |
|---|---|---|
| GEOL110 | Physical Geology Laboratory | 1 |
| GEOL102 | Historical Geology | 4 |
| GEOL322 | Mineralogy | 4 |
| GEOL341 | Structural Geology | 4 |
| GEOL342 | Sedimentation and Stratigraphy | 4 |
| GEOL423 | Optical Mineralogy | 4 |
| GEOL443 | Petrology | 4 |
| **Geology Capstones** | | |
| GEOL393 | Geology Senior Thesis I: Proposal | 3 |
| GEOL394 | Geology Senior Thesis II: Research | 3 |
| GEOL490 | Geology Field Camp | 6 |
| **Geologic Core Discipline Options** [1] | | |
| Select one of the following Quantitative Reasoning courses: | | 3 |
| GEOL351 | Statistics for Geoscientists | |
| GEOL413 | Geoscientific Modeling | |
| GEOL447 | Observational Geophysics | |
| Select one of the following Surface Processes courses: | | 3-4 |
| GEOL340 | Geomorphology | |
| GEOL451 | Groundwater | |
| Select one of the following Geophysics courses: | | 3 |
| GEOL446 | Geophysics | |
| GEOL455 | Marine Geophysics | |
| GEOL457 | Seismology | |
| GEOL460 | Field Geophysics | |
| Select one of the following Geochemistry courses: | | 3-4 |
| GEOL444 | Low Temperature Geochemistry | |
| GEOL445 | High Temperature Geochemistry | |
| GEOL463 | | |
| Select one of the following Geobiology courses: | | 3-4 |
| GEOL331 | Principles of Paleontology | |
| GEOL435 | Environmental Geochemistry | |
| GEOL436 | Principles of Biogeochemistry | |
| GEOL437 | Global Climate Change: Past and Present | |
| **Geology Elective** | | |
| Select any 3-4 credit 300 – 400 level GEOL course not taken to satisfy the above requirements [1] | | 3-4 |
| **Supporting Courses** | | |
| CHEM131 or CHEM135 | Chemistry I - Fundamentals of General Chemistry<br>General Chemistry for Engineers | |
| CHEM132 or CHEM136 | General Chemistry I Laboratory<br>General Chemistry Laboratory for Engineers | |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| Select one of the following: | | 4 |
| PHYS161 & PHYS261 | General Physics: Mechanics and Particle Dynamics<br>and General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | |
| PHYS171 & PHYS261 | Introductory Physics: Mechanics<br>and General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | |
| **Total Credits** | | **70-74** |

[1] Or appropriate substitution with the approval of the department

Matriculated Geology majors are expected to take all courses on campus unless specific departmental permission is given.

# Earth and Environmental Sciences Track

Courses required for the Professional Track B.S. in Earth and Environmental Sciences are listed below. Some courses require field trips for which students are expected to pay for room (if required) and board. The Geology Earth and Environmental Sciences Track leads to a B.S. degree in Geology with special emphasis on coursework that prepares the student for careers in fields other than professional geosciences but for which geological information is foundational. Such careers include but are not limited to science education, science journalism, environmental law and public policy. Background in fields connecting geology to related careers is provided by supporting options in Atmospheric and Oceanic Sciences, Astronomy, and Education. Further coursework in Education (including student teaching) will be required in order to obtain Maryland State Teaching Certification. Students seeking professional opportunities in secondary education are urged, also, to consult with advisors in the College of Education. While this track may also prepare students for work as a geologists in government or industry or for graduate study, students seeking advanced degrees or career opportunities in geology are advised to pursue the Professional Track.

Depending on course options selected, the Earth and Environmental Sciences Track can be completed in between 71 and 77 credits. To receive a degree in Geology, students must earn a grade of C- or better in required geology courses, and a C- average or better in supporting courses in addition to completing Gen Ed and 120 credits overall.

| Course | Title | Credits |
|---|---|---|
| **Geology Courses** | | |
| GEOL100 or GEOL120 | Physical Geology<br>Environmental Geology | 3 |
| GEOL110 | Physical Geology Laboratory | 1 |
| Select one of the following: | | 3 |
| GEOL123 | Causes and Consequences of Global Change [1] | |
| GEOL124 | Evolution of Life and Environment on Planet Earth | |
| GEOL200 | Earth's Fury: Earthquakes, Volcanoes, and Tsunami | |
| GEOL204 | Dinosaurs, Early Humans, Ancestors, and Evolution; The Fossil Record of Vanished Worlds of the Prehistoric Past | |
| GEOL212 | Planetary Geology | |
| GEOL102 | Historical Geology | 4 |
| GEOL322 | Mineralogy | 4 |
| GEOL340 | Geomorphology | 4 |
| GEOL341 | Structural Geology | 4 |
| GEOL342 | Sedimentation and Stratigraphy | 4 |
| **Experiential Learning in Earth Sciences** | | |
| Choose one course from the following: | | 3-6 |
| GEOL386 | Experiential Learning [1] | |
| GEOL490 | Geology Field Camp [2] | |
| GEOL499 | Special Problems in Geology | |
| **Earth Sciences Core Disciplines** | | |
| Choose one from each of the following groups. | | |

| | | |
|---|---|---|
| Analytic Methods in Earth Sciences: | | 3 |
| GEOG373 | Geographic Information Systems | |
| GEOL351 | Statistics for Geoscientists | |
| GEOL413 | Geoscientific Modeling | |
| GEOL447 | Observational Geophysics | |
| Environmental Geosciences: | | 3-4 |
| GEOL375 | Introduction to the Blue Ocean | |
| GEOL423 | Optical Mineralogy | |
| GEOL437 | Global Climate Change: Past and Present | |
| GEOL451 | Groundwater | |
| GEOL452 | Watershed and Wetland Hydrology | |
| GEOL453 | Ecosystem Restoration | |
| Geophysics: | | 3-4 |
| GEOL446 | Geophysics | |
| GEOL455 | Marine Geophysics | |
| GEOL456 | Engineering Geology | |
| GEOL457 | Seismology | |
| GEOL460 | Field Geophysics | |
| Earth Materials: | | 4 |
| GEOL443 | Petrology | |
| GEOL444 | Low Temperature Geochemistry | |
| GEOL445 | High Temperature Geochemistry | |
| Geobiology: | | 3-4 |
| GEOL331 | Principles of Paleontology | |
| GEOL391 | Biology of Extinct Animals | |
| GEOL431 | Vertebrate Paleobiology | |
| GEOL435 | Environmental Geochemistry | |
| GEOL436 | Principles of Biogeochemistry | |
| GEOL437 | Global Climate Change: Past and Present | |
| **Earth Sciences Electives** | | **6-8** |
| Any two 3 - 4 credit 300 - 400 level GEOL course not taken to satisfy the above requirements or appropriate substitution with the approval of the department. If GEOL490 – Geologic Field Camp is taken as an Experiential Learning option, it additionally satisfies one Earth Sciences Elective requirement. | | |
| **Supporting Courses** | | |
| Select one of the following: | | 3 |
| AOSC123 | Causes and Consequences of Global Change [1] | |
| AOSC200 | Weather and Climate | |
| ASTR120 | Introductory Astrophysics - Solar System | |
| TLPL101 & TLPL102 | Inquiry Approach to Teaching STEM (Step 1) and Inquiry Teaching of STEM in Middle School | |
| CHEM131 | Chemistry I - Fundamentals of General Chemistry | 3 |
| or CHEM135 | General Chemistry for Engineers | |
| CHEM132 | General Chemistry I Laboratory | 1 |
| or CHEM136 | General Chemistry Laboratory for Engineers | |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| Select one of the following: | | 4 |
| PHYS161 & PHYS261 | General Physics: Mechanics and Particle Dynamics and General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | |
| PHYS171 & PHYS261 | Introductory Physics: Mechanics and General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | |
| **Total Credits** | | **71-79** |

[1] AOSC123 and GEOL123 cannot both be taken for credit.
[2] GEOL490 satisfies both the Experiential Learning in Earth Sciences requirement and one (of two) Earth Sciences Electives requirement.

# Geophysics Track

The geophysics curriculum is designed to meet the requirements of industry, graduate school, and government. The B.S. degree requires students to complete introductory geology and physics requirements (39 credits) and upper-level requirements including depth options, context options, and breadth options (30 - 35 credits) in addition to the General Education Program requirements and the completion of at least 120 credits in total. In order to receive a degree in Geophysics, the department requires that students must have a grade of C- or better in the required geology courses.

Courses required for the B.S. in Geology are listed below. Some courses require field trips for which the students are expected to pay for room (if required) and board.

| Course | Title | Credits |
|---|---|---|
| **Required Introductory Physics and Geology** | | |
| GEOL100 | Physical Geology | 3 |
| or GEOL120 | Environmental Geology | |
| GEOL110 | Physical Geology Laboratory | 1 |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| MATH241 | Calculus III | 4 |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | 3 |
| or PHYS171 | Introductory Physics: Mechanics | |
| PHYS265 | Introduction to Scientific Programming | 3 |
| PHYS272 | Introductory Physics: Fields | 3 |
| or PHYS260 | General Physics: Electricity, Magnetism and Thermodynamics | |
| PHYS273 | Introductory Physics: Oscillations and Waves | 3 |
| or PHYS270 | General Physics: Waves, Optics, Relativity and Modern Physics | |
| PHYS275 | Experimental Physics I: Mechanics and Waves | 2 |
| PHYS276 | Experimental Physics II: Electricity and Magnetism | 2 |
| Select one of the following: | | 7 |
| MATH243 & GEOL351 | Introduction to Linear Algebra and Differential Equations and Statistics for Geoscientists | |
| MATH240 & MATH246 | Introduction to Linear Algebra and Differential Equations for Scientists and Engineers | |
| **Geophysics Upper Level Requirements** | | |
| GEOL393 | Geology Senior Thesis I: Proposal | 3 |
| GEOL394 | Geology Senior Thesis II: Research | 3 |
| GEOL446 | Geophysics | 3 |
| **Depth Requirements** [1] | | |

| | | |
|---|---|---|
| Select three of the following: | | 9 |
| GEOL447 | Observational Geophysics | |
| GEOL455 | Marine Geophysics | |
| GEOL456 | Engineering Geology | |
| GEOL457 | Seismology | |
| GEOL460 | Field Geophysics | |
| GEOL472 | Tectonics | |
| **Context Requirement** [1] | | |
| Select two of the following: | | 6-8 |
| AOSC400 | Physical Meteorology | |
| AOSC424 | Remote Sensing of the Atmosphere and Ocean | |
| AOSC431 | Atmospheric Thermodynamics | |
| AOSC432 | Dynamics of the Atmosphere and Ocean | |
| ASTR415 | Computational Astrophysics | |
| ASTR430 | The Solar System | |
| ASTR435 | Astrophysics of Exoplanets | |
| GEOL322 | Mineralogy | |
| GEOL340 | Geomorphology | |
| GEOL341 | Structural Geology | |
| GEOL342 | Sedimentation and Stratigraphy | |
| GEOL412 | Geology of the Terrestrial Planets | |
| GEOL423 | Optical Mineralogy | |
| GEOL443 | Petrology | |
| GEOL451 | Groundwater | |
| **Breadth Requirement** | | |
| Select two of the following: | | 6-8 |
| PHYS313 | Electricity and Magnetism I | |
| PHYS371 | Modern Physics | |
| PHYS401 | Quantum Physics I | |
| PHYS404 | Introduction to Statistical Thermodynamics | |
| PHYS410 | Classical Mechanics | |
| PHYS413 | Electricity and Magnetism II | |
| **Recommended Courses** | | |
| Select one of the following: | | |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | |
| CHEM135 & CHEM136 | General Chemistry for Engineers and General Chemistry Laboratory for Engineers | |
| **Total Credits** | | **69-73** |

[1] Or any upper level (300 or higher) Geology course with the approval of the undergraduate director not used to satisfy above requirements. Matriculated Geology majors are expected to take all courses on campus unless specific departmental permission is given.

## GRADUATION PLANS

Click here (https://cmns.umd.edu/undergraduate/advising-academic-planning/academic-planning/four-year-plans/four-year-plans-gened/) for roadmaps for graduation plans in the College of Computer, Mathematical, and Natural Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

## ADVISING

Semesterly advising is mandatory for Geology majors in all tracks. Advising is performed by the Director of Undergraduate Studies or designees. To schedule an advising appointment, please follow the instructions at http://geol.umd.edu/undergraduate/advising/.

# Geophysics Minor

**Geology (GEOL)**
1115 Geology Building
Phone: 301-405-4365
http://geol.umd.edu

**Program Director:** John Merck, Ph.D.

The undergraduate minor in Geophysics recognizes concentrated study in this designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor.

See http://geol.umd.edu for more information.

## REQUIREMENTS

Depending on the courses taken, there are a total of 16-17 credits required for the minor in Geophysics (also see prerequisites.)

| Course | Title | Credits |
|---|---|---|
| Select one of the following: | | 4 |
| GEOL100 & GEOL110 | Physical Geology and Physical Geology Laboratory | |
| GEOL120 & GEOL110 | Environmental Geology and Physical Geology Laboratory | |
| Select two of the following: | | 6 |
| GEOL446 | Geophysics | |
| GEOL447 | Observational Geophysics | |
| GEOL457 | Seismology | |
| Select two of the following: | | 6-7 |
| GEOL341 | Structural Geology | |
| GEOL412 | Geology of the Terrestrial Planets | |
| GEOL446 | Geophysics [1] | |
| GEOL447 | Observational Geophysics [1] | |
| GEOL455 | Marine Geophysics | |
| GEOL456 | Engineering Geology | |
| GEOL457 | Seismology [1] | |
| GEOL499 | Special Problems in Geology | |
| **Total Credits** | | **16-17** |

[1] If not used to satisfy requirement above

## ADVISING

Advising is not mandatory for the Geophysics Minor, however interested students are urged to consult with the Geology Director of Undergraduate Studies prior to declaring the minor to discuss academic planning and logistics. Contact information is available at the Geology web page http://geol.umd.edu.

# Hydrology Minor

**Geology (GEOL)**
1115 Geology Building
Phone: 301-405-4365
http://geol.umd.edu

**Program Director:** John Merck, Ph.D.

An undergraduate minor in Hydrology recognizes concentrated study in a designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director.

A grade of "C-" or better must be earned in all courses required for the minor.

See http://geol.umd.edu for more information.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Minor Requirements** | | |
| Select one of the following: | | 4 |
| GEOL100 & GEOL110 | Physical Geology and Physical Geology Laboratory | |
| GEOL120 & GEOL110 | Environmental Geology and Physical Geology Laboratory | |
| GEOL451 | Groundwater | 3 |
| GEOL452 | Watershed and Wetland Hydrology | 3 |
| Select two of the following: | | 6-7 |
| GEOL436 | Principles of Biogeochemistry | |
| GEOL444 | Low Temperature Geochemistry | |
| GEOL453 | Ecosystem Restoration | |
| or GEOL435 | Environmental Geochemistry | |
| GEOL499 | Special Problems in Geology | |
| **Total Credits** | | **16-17** |

## ADVISING

Advising is not mandatory for the Hydrology Minor, however interested students are urged to consult with the Geology Director of Undergraduate Studies prior to declaring the minor to discuss academic planning and logistics. Contact information is available at the Geology web page http://geol.umd.edu.

# Paleobiology Minor (GEOL)

**Program Director:** John Merck, Ph.D.

The minor in Paleobiology will provide students with a broad understanding of the application of the methods of biology and geology to the study of the history of life, and develop students' appreciation of how issues in the study of paleobiology connect with larger trends in those sciences. It is intended for all students with an interest in the study of the history of life, be it professional or avocational.

## REQUIREMENTS

Depending on optional course(s) taken, a total of 21 – 24 credits are required (see prerequisites (p. 350)). All courses presented for the minor must be passed with a grade of C- or better.

| Course | Title | Credits |
|---|---|---|
| **Fundamental Courses** | | |
| BSCI160 & BSCI161 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab | 4 |
| One of the following: | | 4 |
| GEOL100 & GEOL110 | Physical Geology and Physical Geology Laboratory | |
| GEOL120 & GEOL110 | Environmental Geology and Physical Geology Laboratory | |
| **Introductory Life History or Organismal Biology** | | |
| One of the following: | | 3-4 |
| GEOL102 | Historical Geology | |
| GEOL104 | Dinosaurs: A Natural History | |
| GEOL204 | Dinosaurs, Early Humans, Ancestors, and Evolution; The Fossil Record of Vanished Worlds of the Prehistoric Past | |
| BSCI207 | Principles of Biology III - Organismal Biology | |
| BSCI222 | Principles of Genetics | |
| **Upper-Level Paleobiology** | | |
| One of the following: | | 4 |
| BSCI333/ GEOL331 | Principles of Paleontology | |
| BSCI392 & BSCI393 | Biology of Extinct Animals and Biology of Extinct Animals Laboratory | |
| **Electives** | | |
| Two courses (one from Biology and one from Geology) selected from the following: | | 6-8 |
| BSCI333/ GEOL331 | Principles of Paleontology (if not taken to satisfy the requirement above) | |
| BSCI334 | Mammalogy | |
| BSCI361 | Principles of Ecology | |
| BSCI363 | The Biology of Conservation and Extinction | |
| BSCI392 & BSCI393 | Biology of Extinct Animals and Biology of Extinct Animals Laboratory (if not taken to satisfy the requirement above) | |
| BSCI370 | Principles of Evolution | |
| BSCI399 | Biology Department Research [1] | |
| GEOL342 | Sedimentation and Stratigraphy | |
| GEOL431 | Vertebrate Paleobiology | |
| GEOL436 | Principles of Biogeochemistry | |
| GEOL437 | Global Climate Change: Past and Present | |
| GEOL499 | Special Problems in Geology | |

| | |
|---|---|
| Or another appropriate biology or geology course approved in advance by the Entomology or Geology advisor | |
| **Total Credits** | **21-24** |

[1] The Paleobiology Minor requires 3 cumulative credits of BSCI399 to count as elective. Research topic must be approved by GEOL or ENTM advisor.

# Prerequisites

## Required Courses

The following required courses have prerequisites (as indicated in the course description):

- BSCI207 Principles of Biology III - Organismal Biology
- BSCI222 Principles of Genetics
- GEOL102 Historical Geology
- BSCI333 Principles of Paleontology or GEOL331 (cross-listed)
- BSCI392 Biology of Extinct Animals and BSCI393 (lab)

Of these, only BSCI207 and BSCI222 have supporting prerequisites not already required for the minor.

## Optional Courses

The following optional courses have prerequisites (as indicated in the course description):

- BSCI333 Principles of Paleontology or GEOL331 (cross-listed)
- BSCI334 Mammalogy
- BSCI361 Principles of Ecology
- BSCI363 The Biology of Conservation and Extinction
- BSCI392 Biology of Extinct Animals and BSCI393 (lab)
- BSCI370 Principles of Evolution
- GEOL342 Sedimentation and Stratigraphy
- GEOL431 Vertebrate Paleobiology
- GEOL436 Principles of Biogeochemistry
- GEOL437 Global Climate Change: Past and Present

Of these, only BSCI334, BSCI361, GEOL342, GEOL436, and GEOL437 have supporting prerequisites not already required for the minor.

# ADVISING

Advising is not mandatory for the Paleobiology Minor, however interested students are urged to consult with the Geology or Entomology Director of Undergraduate Studies prior to declaring the minor to discuss academic planning and logistics. Contact information is available at the Geology web page http://www.geol.umd.edu and the Entomology web page http://entomology.umd.edu.

# Planetary Sciences Minor (GEOL)

**Astronomy (ASTR)**
1208 Physical Sciences Complex
Phone: 301-405-3001
http://astro.umd.edu

**Geology (GEOL)**
1115 Geology Building
Phone: 301-405-4365
http://geol.umd.edu

**ASTR Program Director:** Melissa Hayes-Gehrke, Ph.D.
**GEOL Program Director:** John Merck, Ph.D.

The minor in Planetary Sciences will provide students with a broad understanding of the application of the methods of astronomy and geology to the study of the Solar System, and develop the students' appreciation of how issues in the study of planets connect with larger issues in those sciences. It is intended for all students with an interest in the study of the Solar System, be it professional or avocational. In addition to Astronomy and Geology majors, it dovetails with the professional goals of Environmental Science and Policy, Environmental Science and Technology, Chemistry, Physics, Physical Sciences, and Secondary Education majors.

Building on a three-course base of fundamental knowledge of astronomy, geology and an introduction to the Solar System, the program is completed by three advanced courses addressing specific topics adding depth to the student's knowledge of planetary astronomy and to the geologic tools of the planetary scientist. Students are required to sample from optional courses from both departments. The Joint Minor in Planetary Sciences does not require significant prerequisite knowledge, however some optional courses may require prerequisites of 100-level courses in chemistry, mathematics, or geology.

An appointment must be made to register for the minor before final 30 credits are taken. Please visit http://astro.umd.edu/undergrad/minorPlanSci (http://astro.umd.edu/undergrad/minorPlanSci/) for complete rules and procedures and contact the department with any questions.

# REQUIREMENTS

The minor will require 19-22 credits:

| Course | Title | Credits |
|---|---|---|
| **Required** | | |
| Select one of the following: [1] | | 3-4 |
| ASTR100 | Introduction to Astronomy | |
| ASTR101 | General Astronomy | |
| ASTR120 | Introductory Astrophysics - Solar System | |
| Select one of the following: | | 4 |
| GEOL100 & GEOL110 | Physical Geology and Physical Geology Laboratory | |
| GEOL120 & GEOL110 | Environmental Geology and Physical Geology Laboratory | |
| Select one of the following: | | 3 |
| ASTR330 | Solar System Astronomy | |
| ASTR430 | The Solar System | |
| GEOL212 | Planetary Geology | |
| Select three from the following: [2] | | 9-11 |
| ASTR220 | Collisions in Space - The Threat of Asteroid Impacts | |
| ASTR230 | The Science and Fiction of Planetary Systems | |
| ASTR380 | Life in the Universe - Astrobiology | |
| ASTR498 | Special Problems in Astronomy | |
| GEOL322 | Mineralogy | |
| GEOL340 | Geomorphology | |
| GEOL412 | Geology of the Terrestrial Planets | |

| | | |
|---|---|---|
| GEOL437 | Global Climate Change: Past and Present | |
| GEOL499 | Special Problems in Geology | |
| ASTR/GEOL | Another appropriate astronomy or geology course approved in advance by the Astronomy or Geology advisor | |
| **Total Credits** | | **19-22** |

1 Or equivalent transfer course(s).

2 At least one choice must be from Geology and one from Astronomy. At least six credits from this list and nine credits overall must be at the 300-400 level.

# Surficial Geology Minor

**Program Director:** John Merck, Ph.D.

This undergraduate minor recognizes concentrated study in Surficial Geology, a designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and are administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| Select one of the following: | | 4 |
| GEOL100 & GEOL110 | Physical Geology and Physical Geology Laboratory | |
| GEOL120 & GEOL110 | Environmental Geology and Physical Geology Laboratory | |
| GEOL123 | Causes and Consequences of Global Change | 3 |
| GEOL340 | Geomorphology | 4 |
| Select two of the following: | | 6-8 |
| GEOL331 | Principles of Paleontology | |
| GEOL342 | Sedimentation and Stratigraphy | |
| GEOL435 | Environmental Geochemistry | |
| GEOL437 | Global Climate Change: Past and Present | |
| GEOL444 | Low Temperature Geochemistry | |
| GEOL451 | Groundwater | |
| or GEOL452 | Watershed and Wetland Hydrology | |
| GEOL499 | Special Problems in Geology | |
| **Total Credits** | | **17-19** |

## ADVISING

Advising is not mandatory for the Surficial Geology Minor, however interested students are urged to consult with the Geology Director of Undergraduate Studies prior to declaring the minor to discuss academic planning and logistics. Contact information is available at the Geology web page http://geol.umd.edu.

# Mathematics

**College of Computer, Mathematical, & Natural Sciences**
4176 Campus Drive
William E. Kirwan Hall
MTH1117
Phone: 301-405-5053
math-ugadvisor@umd.edu
http://www-math.umd.edu

The Department of Mathematics teaches a broad range of courses in modern mathematics and statistics. This translates into developing strong ability to solve problems and to apply mathematics and statistics to other areas. The program prepares students to further their mathematical education in graduate school, to teach at the secondary school level, or to work in the government or private sector.

## PROGRAMS

### Major

- Mathematics Major (p. 353)

### Minors

- Actuarial Mathematics Minor (p. 352)
- Data Science Minor (MATH) (p. 353)
- Mathematics Minor (p. 359)
- Statistics Minor (p. 360)

## ADVISING

Every semester, each math major is required to submit an advising form to the Undergraduate Advising Office to discuss the student's past and present progress, as well as future plans. We also have faculty advisors from various disciplines so that a student with specific interests may consult with a faculty advisor who has a good understanding of the student's personal goals and desires.

The Undergraduate Advising Office is always available to address any issues that any student, math major or not, might wish to discuss. Students and members of the general public are welcome to email their inquiries to math-ugadvisor@umd.edu, or stop by during walk-in hours (https://www-math.umd.edu/advising-information.html).

## OPPORTUNITIES

### Undergraduate Research Experiences

There are a variety of undergraduate research opportunities in mathematics at Maryland. For detailed information, see http://www-math.umd.edu/undergraduate/opportunities.html?id=102.

### Combined B.S./M.A. Program in Mathematics

The Department of Mathematics offers a combined B.S./M.A. degree program for students with exceptional ability and interest in mathematics. Students enrolled in the Combined Degree Program may count up to 9 credits of coursework taken for their undergraduate degree toward the M.A. degree as well. For further information, please see the Mathematics Department webpage: http://www-math.umd.edu/undergraduate/math-majors.html?id=165.

### Honors Program

The Mathematics Honors Program is designed for students showing exceptional ability and interest in mathematics. Its aim is to give a student the best possible mathematics education. A precise statement

of the requirements may be found at http://www-math.umd.edu/departmental-honors.html.

The department also offers a special department honors sequence, MATH340-MATH341, for promising freshmen with a strong mathematical background (including calculus). Participants in the Honors College may also enroll in special honors sections of the lower-level mathematics courses (MATH140H, MATH141H, MATH241H, MATH246H). Students in MATH340-MATH341 and the special honors sections need not be Math majors.

The Mathematics departmental honors sequence and the Honors College program are distinct, and enrollment in one does not imply acceptance in the other.

## Student Societies and Professional Organizations

There are several student-run groups within the department: the Math Club, Pi Mu Epsilon, the Actuarial Club, and Women in Math.

- Math Club (http://mathclub.math.umd.edu)
- Mathematical Modeling Club
- Putnam Express
- Actuarial Math Club (http://actuarial.math.umd.edu)
- Women in Math (http://wim.math.umd.edu)

## Awards and Recognition

**Aaron Strauss Scholarships:** An award to an outstanding non-graduating math major. The recipient receives full remission of (in-state) tuition for the following academic year.

**Aziz Mathematics Scholarship:** The Aziz scholarship is the department's highest award of mathematical excellence for a non-graduating math major.

**Dan Shanks Award:** An award to an undergraduate student studying computational number theory and related areas.

**Dan Sweet Scholarship:** An award to a math major working on research projects in the area of Applied Harmonic Analysis.

**Higginbotham Prize:** An award to an outstanding junior math major.

**John and Sabrina Konter Endowed Scholarship:** An award to an undergraduate math major with an interest in applications to real world problems in business and industry.

**Milton Abramowitz Award:** An award to an outstanding junior or senior Math major.

**Outstanding Senior Award:** The highest departmental award to an outstanding graduating Math major.

**Strauss Teaching Assistantship:** An opportunity for outstanding Math majors to work as an undergraduate teaching assistants.

**Stuart S. Antman Undergraduate Award in Mathematics**: An award to an outstanding undergraduate student pursuing studies combining mathematics with one or more of the biological, chemical, engineering, and physical sciences.

For further information on awards, see http://www-math.umd.edu/undergraduate/math-majors.html?id=166.

# Actuarial Mathematics Minor

**Mathematics (MATH)**
1117 Mathematics Building
Phone: 301-405-5053
http://www-math.umd.edu

**Program Advisor:** Ida Chan

The Department of Mathematics offers a minor in Actuarial Mathematics for students whose majors are not mathematics. The goal of the minor in Actuarial Mathematics is to provide the student with an introduction to statistics in general and actuarial mathematics in particular. This minor is closely related to the minor in Statistics, but its focus is on actuarial mathematics.

## REQUIREMENTS

**16 credits are required for the minor as outlined below:**

| Course | Title | Credits |
|---|---|---|
| MATH241 | Calculus III | 4 |
| or MATH340 | Multivariable Calculus, Linear Algebra and Differential Equations I (Honors) | |
| Select one of the following pairs of courses: | | |
| STAT400 & STAT401 | Applied Probability and Statistics I and Applied Probability and Statistics II | 6 |
| OR | | |
| STAT410 & STAT420 | Introduction to Probability Theory and Theory and Methods of Statistics | 6 |
| OR | | |
| STAT410 & STAT401 | Introduction to Probability Theory and Applied Probability and Statistics II | 6 |
| MATH461 | Linear Algebra for Scientists and Engineers | 3-4 |
| or MATH240 | Introduction to Linear Algebra | |
| or MATH341 | Multivariable Calculus, Linear Algebra, Differential Equations II (Honors) | |
| STAT470 | Actuarial Mathematics | 3 |
| **Recommended** | | |
| MATH424 | Introduction to the Mathematics of Finance | |
| STAT430 | Introduction to Statistical Computing with SAS | |

**Other issues related to coursework:**

- The minor in Actuarial Mathematics is NOT open to Mathematics majors.
- The student will need to achieve at least a "C-" (1.7) in each minor course and an overall minor GPA of 2.0.
- A student may use a maximum of 2 courses to satisfy the requirements of both a major and a minor in Actuarial Mathematics.
- No more than two of the courses for the minor in Actuarial Mathematics may be taken at an institution other than the University of Maryland, College Park. In addition, only one of the upper-level courses for the minor may be taken at an institution other than the University of Maryland, College Park.

# Data Science Minor (MATH)

**Program Director:** Wojciech Czaja, Ph.D.

The Data Science minor will offer a rigorous training in this interdisciplinary field, which combines scientific methods, processes, and algorithms to extract knowledge from data and the information it contains. Students will complete a required set of DATA courses which focus on fundamental areas of computer science, mathematics, and statistics, as well as ethics and best practices in data science. The scientific method introduced in these courses is what separates modern Data Science from broadly understood data analytics. The proposed program integrates these aspects with an in-depth look into critical ethical and privacy aspects of the modern data-dependent world. This combination creates a unique undergraduate offering and it provides students with necessary tools for a broad range of careers, ranging from private sector employment, to government and research.

Restriction: Students in the Mathematics major Statistics specialization (1701S) major, the Computer Science major Data Science specialization (0701B), or the Computer Science major Machine Learning specialization (0701F) may not enroll in the Data Science minor.

## Program Learning Outcomes

1. Apply modern data science techniques arising in the fields of computer science and mathematics to solve real-world problems, with a special emphasis on problems arising in the context of biomedical, natural and physical sciences.
2. Demonstrate critical thinking and innovation skills in the design of data science techniques as applied to data curation, analysis, modeling, visualization, or decision making, while understanding how to identify and express limitations in the application of models as analytic and predictive tools.
3. Communicate and collaborate in a variety of professional contexts and in diverse environments, demonstrating the understanding of principles of effective data visualization design for data communication, as well as communicating effectively with diverse audiences.
4. Understand the human and ethical implications of data science and integrate that knowledge into the design and execution of their work by applying relevant ethical and social standards to: demonstrate understanding of privacy issues; analyze and discuss social impacts in the realm of data science; advocate for ethical decision making in the use of data.

## REQUIREMENTS

A grade of C- or better is required for all DATA minor course requirements. Students must take DATA100, STAT100, MATH135, or any 400-level STAT course as a prerequisite for the minor.

| Course | Title | Credits |
|---|---|---|
| DATA110 | Applications of R for Data Science | 1 |
| DATA120 | Python Programming for Data Science (Python Programming for Data Science) | 1 |
| DATA200 | (Best Practices for Big Data Collection and Analysis) | 3 |
| DATA250 | (Discrete Mathematics) [1] | 4 |
| DATA320 | (Introduction to Data Science) [2] | 3 |
| DATA350 | (Data Visualization and Presentation) | 3 |
| DATA400 | Applied Probability and Statistics I [3] | 3 |
| **Total Credits** | | **18** |

1. DATA250 can be replaced by CMSC250 and (MATH240, MATH341 or MATH461)
2. DATA320 can be replaced by CMSC320
3. DATA400 can be replaced by STAT400, STAT410 or ENEE324

Course Prerequisite: MATH141 is a prerequisite for some of the courses in this program.

No more than 2 courses for the minor in Data Science may be taken at an institution other than the University of Maryland, College Park.

# Mathematics Major

**Program Director:** Larry Washington, Ph.D.

The program in Mathematics leads to a degree of Bachelor of Science in Mathematics and offers students training in preparation for graduate work, teaching, and positions in government or industry. Mathematical training is integrated with computer use in several courses. Because a strong mathematical background is important in many fields, over half of UMCP Mathematics majors are double majors. Additional information on these topics and mathematics is available from the departmental website.

## Placement in Courses

The Department of Mathematics has a large offering to accommodate a great variety of background, interests, and abilities. The department permits students to take any course for which they have the appropriate background, regardless of formal course work. For example, students with a high school calculus course may be permitted to begin in the middle of the calculus sequence even if they do not have advanced standing. Students may obtain undergraduate credit for mathematics courses in any of the following ways: passing the appropriate CEEB Advanced Placement Examination, passing standardized CLEP examinations, and through the department's credit-by-examinations. Students are urged to consult with advisors from the Department of Mathematics to assist with proper placements.

## Program Objectives

The Department of Mathematics educates its majors in a broad range of modern mathematics while instilling in them a strong ability to solve problems, apply mathematics to other areas, and create rigorous mathematical arguments. The program prepares the majors to further their mathematical education in graduate school, or to teach at the secondary school level, or to work in government or business.

## Program Learning Outcomes

1. Students will acquire problem-solving skills in a broad range of significant mathematics.
2. Students will gain an understanding of what constitutes mathematical thinking, including the ability to produce and judge the validity of rigorous mathematical arguments.
3. Students will be able to communicate mathematical ideas and arguments.

4. Students will be prepared to use mathematics in their future endeavors, not only in the discipline of mathematics, but also in other disciplines.

## Statistics and Probability and Applied Mathematics

Courses in statistics and probability, and applied mathematics are offered by the Department of Mathematics. These courses are open to non-majors as well as majors, and carry credit in mathematics. Students wishing to concentrate in the above may do so by choosing an appropriate program under the Department of Mathematics.

# REQUIREMENTS

There are four tracks for the major: the traditional track, the applied mathematics track, the secondary education track, and the statistics track. The secondary education track is for students seeking to become certified to teach mathematics at the secondary level. Each mathematics major must complete each required course with a grade of C- or better and with an overall major GPA of 2.0.

## Traditional Track

| Course | Title | Credits |
|---|---|---|
| **Introductory Sequence** [1] | | |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| MATH240 | Introduction to Linear Algebra | 4 |
| MATH241 | Calculus III | 4 |
| MATH310 | Introduction to Mathematical Proof | 3 |
| Select one of the following: | | 3 |
| MATH246 | Differential Equations for Scientists and Engineers | |
| MATH436 | Differential Geometry of Curves and Surfaces I | |
| MATH462 | Partial Differential Equations | |
| **MATH/AMSC/STAT Courses** | | |
| Select eight courses of 400-level or higher; must include: [2] | | |
| MATH410 | Advanced Calculus I | 3 |
| Select one of the following: | | 3 |
| MATH401 | Applications of Linear Algebra | |
| MATH403 | Introduction to Abstract Algebra | |
| MATH405 | Linear Algebra | |
| Select one of the following: | | 3 |
| AMSC460 | Computational Methods | |
| AMSC466 | Introduction to Numerical Analysis I | |
| Any 400-level STAT course other than STAT464 | | 3 |
| Select depth requirement; a one year sequence chosen from the following: | | 3-6 |
| MATH410 & MATH411 | Advanced Calculus I and Advanced Calculus II | |
| MATH403 & MATH404 | Introduction to Abstract Algebra and Field Theory | |
| MATH403 & MATH405 | Introduction to Abstract Algebra and Linear Algebra | |
| STAT410 & STAT420 | Introduction to Probability Theory and Theory and Methods of Statistics | |
| Select electives: 400-level MATH/AMSC/STAT course [3, 4] | | 6-9 |
| **Computer Programming Requirement** | | |
| Select one of the following: | | 3-4 |
| CMSC106 | Introduction to C Programming | |
| CMSC131 | Object-Oriented Programming I | |
| CMSC132 | Object-Oriented Programming II | |
| ENAE202 | Computing Fundamentals for Engineers | |
| ENEE150 | Intermediate Programming Concepts for Engineers | |
| PHYS265 | Introduction to Scientific Programming | |
| **Supporting three-course sequence** [5] | | |
| Select one of eight sequences | | 9-13 |
| Sequence One (11 credits) | | |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | |
| PHYS260 & PHYS261 | General Physics: Electricity, Magnetism and Thermodynamics and General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | |
| PHYS270 & PHYS271 | General Physics: Waves, Optics, Relativity and Modern Physics and General Physics: Electrodynamics, Light, Relativity and Modern Physics (Laboratory) | |
| Sequence Two (9 credits) | | |
| PHYS171 | Introductory Physics: Mechanics | |
| PHYS272 | Introductory Physics: Fields | |
| PHYS273 | Introductory Physics: Oscillations and Waves | |
| Sequence Three (9 credits) | | |
| ENES102 | Mechanics I | |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | |
| ENES220 | Mechanics II | |
| Sequence Four (12 credits) | | |
| CMSC131 | Object-Oriented Programming I | |
| CMSC132 | Object-Oriented Programming II | |
| CMSC216 | Introduction to Computer Systems | |
| Sequence Five (13 credits) | | |
| CHEM146 & CHEM177 | Principles of General Chemistry and Introduction to Laboratory Practices and Research in the Chemical Sciences | |
| CHEM237 | Principles of Organic Chemistry I | |
| CHEM247 | Principles of Organic Chemistry II | |
| Sequence Six (12 credits) | | |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | |
| CHEM241 & CHEM242 | Organic Chemistry II and Organic Chemistry Laboratory II | |
| Sequence Seven (11 credits) | | |
| ECON200 | Principles of Microeconomics | |
| ECON201 | Principles of Macroeconomics | |
| ECON305 | Intermediate Macroeconomic Theory and Policy | |
| or ECON306 | Intermediate Microeconomic Theory & Policy | |
| OR | | |
| ECON325 | Intermediate Macroeconomic Analysis | |

| | | |
|---|---|---|
| or ECON326 | Intermediate Microeconomic Analysis | |
| Sequence Eight (9 credits) | | |
| BMGT220 | Principles of Accounting I | |
| BMGT221 | Principles of Accounting II | |
| BMGT340 | Business Finance | |
| **Total Credits** | | **55-66** |

1 Or honors sequence: MATH340-MATH341.Completion of MATH340 satisfies the requirement for MATH241; completion of MATH340-MATH341 satisfies the requirement for MATH240-MATH241-MATH246.
2 At least four courses must be taken at College Park.
3 400 level courses. Students with a strong interest in applied mathematics may, with the approval of the Undergraduate Office, substitute two courses (with strong mathematics content) from outside the Mathematics Department for one upper-level elective course.
4 May not include: MATH461, MATH478, MATH480-MATH484, STAT464
5 Intended to broaden the student's mathematical experience. (Other sequences might be approved by the Undergraduate Office but they would have to make use of mathematical ideas, comparable to the sequences on this list.)

# Applied Mathematics Track

| Course | Title | Credits |
|---|---|---|
| **Introductory Sequence** [1] | | |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| MATH240 | Introduction to Linear Algebra | 4 |
| MATH241 | Calculus III | 4 |
| MATH310 | Introduction to Mathematical Proof | 3 |
| Select one of the following: | | 3 |
| MATH246 | Differential Equations for Scientists and Engineers | |
| MATH436 | Differential Geometry of Curves and Surfaces I | |
| MATH462 | Partial Differential Equations | |
| **MATH/AMSC/STAT Courses** | | |
| Select eight 400-level or higher; must include: [2] | | |
| MATH410 | Advanced Calculus I | 3 |
| STAT410 | Introduction to Probability Theory | 3 |
| STAT4XX | One additional STAT course other than STAT400, STAT410, STAT464 | 3 |
| MATH401 | Applications of Linear Algebra | 3 |
| or MATH405 | Linear Algebra | |
| AMSC460 | Computational Methods | 3 |
| or AMSC466 | Introduction to Numerical Analysis I | |
| Select one of the following: | | 3 |
| MATH416 | Applied Harmonic Analysis: An Introduction to Signal Processing | |
| MATH420 | Mathematical Modeling | |
| MATH424 | Introduction to the Mathematics of Finance | |
| MATH431 | Geometry for Computer Applications | |
| MATH452 | Introduction to Dynamics and Chaos | |
| MATH456 | Cryptography | |
| MATH462 | Partial Differential Equations | |
| MATH463 | Complex Variables | |
| MATH464 | Transform Methods | |
| MATH475 | Combinatorics and Graph Theory | |
| Select depth requirement; a one year sequence chosen from the following: | | 3 |
| MATH410 & MATH411 | Advanced Calculus I and Advanced Calculus II | |
| MATH416 & MATH464 | Applied Harmonic Analysis: An Introduction to Signal Processing and Transform Methods | |
| MATH462 & MATH463 | Partial Differential Equations and Complex Variables | |
| STAT410 & STAT420 | Introduction to Probability Theory and Theory and Methods of Statistics | |
| Select electives: 400-level MATH/AMSC/STAT course [3] | | |
| **Computer Programming Requirement** | | |
| Select one of the following: | | |
| CMSC106 | Introduction to C Programming | |
| CMSC131 | Object-Oriented Programming I | |
| CMSC132 | Object-Oriented Programming II | |
| ENAE202 | Computing Fundamentals for Engineers | |
| ENEE150 | Intermediate Programming Concepts for Engineers | |
| PHYS265 | Introduction to Scientific Programming | |
| **Supporting Three-course Sequence** [4] | | |
| Select one of twelve sequences | | 9-13 |
| Sequence One (11 credits) | | |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | |
| PHYS260 & PHYS261 | General Physics: Electricity, Magnetism and Thermodynamics and General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | |
| PHYS270 & PHYS271 | General Physics: Waves, Optics, Relativity and Modern Physics and General Physics: Electrodynamics, Light, Relativity and Modern Physics (Laboratory) | |
| Sequence Two (9 credits) | | |
| PHYS171 | Introductory Physics: Mechanics | |
| PHYS272 | Introductory Physics: Fields | |
| PHYS273 | Introductory Physics: Oscillations and Waves | |
| Sequence Three (9 credits) | | |
| ENES102 | Mechanics I | |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | |
| ENES220 | Mechanics II | |
| Sequence Four (12 credits) | | |
| CMSC131 | Object-Oriented Programming I | |
| CMSC132 | Object-Oriented Programming II | |
| CMSC216 | Introduction to Computer Systems | |
| Sequence Five (13 credits) | | |
| CHEM146 & CHEM177 | Principles of General Chemistry and Introduction to Laboratory Practices and Research in the Chemical Sciences | |
| CHEM237 | Principles of Organic Chemistry I | |
| CHEM247 | Principles of Organic Chemistry II | |

| | |
|---|---|
| Sequence Six (12 credits) | |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I |
| CHEM241 & CHEM242 | Organic Chemistry II and Organic Chemistry Laboratory II |
| Sequence Seven (11 credits) | |
| ECON200 | Principles of Microeconomics |
| ECON201 | Principles of Macroeconomics |
| ECON305 | Intermediate Macroeconomic Theory and Policy |
| or ECON306 | Intermediate Microeconomic Theory & Policy |
| OR | |
| ECON325 | Intermediate Macroeconomic Analysis |
| or ECON326 | Intermediate Microeconomic Analysis |
| Sequence Eight (9 credits) | |
| BMGT220 | Principles of Accounting I |
| BMGT221 | Principles of Accounting II |
| BMGT340 | Business Finance |
| Sequence Nine (12-13 credits) | |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory |
| BSCI160 & BSCI161 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory |
| OR | |
| CHEM146 & CHEM177 | Principles of General Chemistry and Introduction to Laboratory Practices and Research in the Chemical Sciences |
| Sequence Ten (10 credits) | |
| ASTR120 | Introductory Astrophysics - Solar System |
| ASTR121 | Introductory Astrophysics II - Stars and Beyond [5] |
| PHYS161 | General Physics: Mechanics and Particle Dynamics |
| or PHYS171 | Introductory Physics: Mechanics |
| Sequence Eleven (12 credits) | |
| GEOL100 | Physical Geology |
| Select Two From: | |
| GEOL322 | Mineralogy |
| GEOL340 | Geomorphology |
| GEOL341 | Structural Geology |
| GEOL375 | Introduction to the Blue Ocean |
| Sequence Twelve (10 credits) | |
| AOSC200 & AOSC201 | Weather and Climate and Weather and Climate Laboratory |
| Two additional 400-level AOSC courses | |
| **Total Credits** | **52-56** |

1 Or honors sequence: MATH340-MATH341.Completion of MATH340 satisfies the requirement for MATH241; completion of MATH340-MATH341 satisfies the requirement for MATH240-MATH241-MATH246.

2 At least four courses must be taken at College Park.

3 400 level courses. May not include: MATH461, MATH478, MATH480-MATH484, STAT464

4 Intended to broaden the student's mathematical experience. (Other sequences might be approved by the Undergraduate Office but they would have to make use of mathematical ideas, comparable to the sequences on this list.

5 ASTR121 is restricted to Astronomy majors, but may be open to Mathematics majors if space is available. Consequently, Mathematics majors are not guaranteed a seat in this course. Contact the Astronomy department for more information.

# Secondary Education Track

| Course | Title | Credits |
|---|---|---|
| **Introductory Sequence** [1] | | |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| MATH240 | Introduction to Linear Algebra | 4 |
| MATH241 | Calculus III | 4 |
| MATH310 | Introduction to Mathematical Proof | 3 |
| Select one of the following: | | 3-4 |
| MATH246 | Differential Equations for Scientists and Engineers | |
| MATH341 | Multivariable Calculus, Linear Algebra, Differential Equations II (Honors) | |
| MATH401 | Applications of Linear Algebra | |
| MATH420 | Mathematical Modeling | |
| MATH452 | Introduction to Dynamics and Chaos | |
| MATH462 | Partial Differential Equations | |
| AMSC460 | Computational Methods | |
| AMSC466 | Introduction to Numerical Analysis I | |
| **MATH/AMSC/STAT Courses** [2] | | |
| Select seven courses at the 400-level or higher, must include: | | |
| MATH410 | Advanced Calculus I | 3 |
| MATH430 | Euclidean and Non-Euclidean Geometries | 3 |
| MATH402 | Algebraic Structures | 3 |
| or MATH403 | Introduction to Abstract Algebra | |
| STAT400 | Applied Probability and Statistics I | 3 |
| or STAT410 | Introduction to Probability Theory | |
| Select one of the following: | | 3 |
| MATH406 | Introduction to Number Theory | |
| MATH445 | Elementary Mathematical Logic | |
| MATH446 | Axiomatic Set Theory | |
| MATH456 | Cryptography | |
| MATH475 | Combinatorics and Graph Theory | |
| Select electives: 400-level MATH/AMSC/STAT course [3] | | |
| **Computer Programming Requirement** | | |
| Select one of the following: | | 3-4 |
| CMSC106 | Introduction to C Programming | |
| CMSC131 | Object-Oriented Programming I | |
| CMSC132 | Object-Oriented Programming II | |
| ENAE202 | Computing Fundamentals for Engineers | |
| ENEE150 | Intermediate Programming Concepts for Engineers | |
| PHYS265 | Introduction to Scientific Programming | |
| **Education Requirements** [4] | | |

| | | |
|---|---|---|
| TLPL478 | Professional Seminar in Education (TLPL478D: Professional Seminar in Education: Mathematics) | 1 |
| TLPL488 | Special Topics in Education (TLPL488B: Teaching Academically, Culturally and Linguistically Diverse Students in Secondary Education) | 2 |
| TLPL489 | Internship in Education (TLPL489D: Internship in Education: Mathematics) | 12 |
| **Supporting Sequence** [5] | | |
| Select one of six sequences | | 7-8 |
| Sequence One (8 credits) | | |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | |
| Sequence Two (7 credits) | | |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | |
| PHYS260 & PHYS261 | General Physics: Electricity, Magnetism and Thermodynamics and General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | |
| Sequence Three (8 credits) | | |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | |
| BSCI160 & BSCI161 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab | |
| Sequence Four (7 credits) | | |
| ASTR120 | Introductory Astrophysics - Solar System | |
| ASTR121 | Introductory Astrophysics II - Stars and Beyond | |
| Sequence Five (7-8 credits) | | |
| GEOL100 & GEOL110 | Physical Geology and Physical Geology Laboratory | |
| GEOL322 | Mineralogy | |
| or GEOL340 | Geomorphology | |
| or GEOL341 | Structural Geology | |
| or GEOL375 | Introduction to the Blue Ocean | |
| Sequence Six (7 credits) | | |
| AOSC200 & AOSC201 | Weather and Climate and Weather and Climate Laboratory | |
| AOSC4xx | Any 400 level AOSC course | |
| **Total Credits** | | **62-65** |

1. Or honors sequence: MATH340-MATH341.Completion of MATH340 satisfies the requirement for MATH241; completion of MATH340-MATH341 satisfies the requirement for MATH240-MATH241-MATH246.
2. At least four courses must be taken at College Park.
3. May not include: MATH461,MATH478, MATH480-MATH484, or STAT464
4. The student-teaching courses have further prerequisites in the College of Education. In order to take these courses the student must be admitted into the College of Education. A student in the secondary education track of the mathematics major would normally be expected to receive a double major in Mathematics and Mathematics Education.
5. These are intended to broaden the student's mathematical experience. (Other sequences might be approved by the Undergraduate Office but they would have to make use of mathematical ideas, comparable to the sequences on this list.

# Statistics Track

| Course | Title | Credits |
|---|---|---|
| **Introductory Sequence** [1] | | |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| MATH240 | Introduction to Linear Algebra | 4 |
| MATH241 | Calculus III | 4 |
| MATH310 | Introduction to Mathematical Proof | 3 |
| Select one of the following: | | 3 |
| MATH246 | Differential Equations for Scientists and Engineers | |
| MATH436 | Differential Geometry of Curves and Surfaces I | |
| MATH462 | Partial Differential Equations | |
| **MATH/AMSC/STAT Courses** [2] | | |
| Select eight courses, must include: | | |
| MATH410 | Advanced Calculus I | 3 |
| STAT410 | Introduction to Probability Theory | 3 |
| STAT430 | Introduction to Statistical Computing with SAS | 3 |
| AMSC460 | Computational Methods | 3 |
| or AMSC466 | Introduction to Numerical Analysis I | |
| MATH401 | Applications of Linear Algebra | 3 |
| or MATH405 | Linear Algebra | |
| STAT401 | Applied Probability and Statistics II | 3 |
| or STAT420 | Theory and Methods of Statistics | |
| Select two of the following: | | 6 |
| STAT4xx | Any 400-level or higher STAT courses [3] | |
| MATH411 | Advanced Calculus II | |
| MATH420 | Mathematical Modeling | |
| MATH424 | Introduction to the Mathematics of Finance | |
| MATH464 | Transform Methods | |
| **Computer Programming Requirement** | | |
| Select one of the following: | | 3-4 |
| CMSC106 | Introduction to C Programming | |
| CMSC131 | Object-Oriented Programming I | |
| CMSC132 | Object-Oriented Programming II | |
| ENAE202 | Computing Fundamentals for Engineers | |
| ENEE150 | Intermediate Programming Concepts for Engineers | |
| PHYS265 | Introduction to Scientific Programming | |
| **Supporting Three-course Sequence** [4] | | |
| Select one of eight sequences | | 9-13 |
| Sequence One (11 credits) | | |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | |
| PHYS260 & PHYS261 | General Physics: Electricity, Magnetism and Thermodynamics and General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | |
| PHYS270 & PHYS271 | General Physics: Waves, Optics, Relativity and Modern Physics and General Physics: Electrodynamics, Light, Relativity and Modern Physics (Laboratory) | |

| | |
|---|---|
| Sequence Two (9 credits) | |
| PHYS171 | Introductory Physics: Mechanics |
| PHYS272 | Introductory Physics: Fields |
| PHYS273 | Introductory Physics: Oscillations and Waves |
| Sequence Three (9 credits) | |
| ENES102 | Mechanics I |
| PHYS161 | General Physics: Mechanics and Particle Dynamics |
| ENES220 | Mechanics II |
| Sequence Four (12 credits) | |
| CMSC131 | Object-Oriented Programming I |
| CMSC132 | Object-Oriented Programming II |
| CMSC216 | Introduction to Computer Systems |
| Sequence Five (13 credits) | |
| CHEM146 & CHEM177 | Principles of General Chemistry and Introduction to Laboratory Practices and Research in the Chemical Sciences |
| CHEM237 | Principles of Organic Chemistry I |
| CHEM247 | Principles of Organic Chemistry II |
| Sequence Six (12 credits) | |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I |
| CHEM241 & CHEM242 | Organic Chemistry II and Organic Chemistry Laboratory II |
| Sequence Seven (11 credits) | |
| ECON200 | Principles of Microeconomics |
| ECON201 | Principles of Macroeconomics |
| ECON305 | Intermediate Macroeconomic Theory and Policy |
| or ECON306 | Intermediate Microeconomic Theory & Policy |
| OR | |
| ECON325 | Intermediate Macroeconomic Analysis |
| or ECON326 | Intermediate Microeconomic Analysis |
| Sequence Eight (9 credits) | |
| BMGT220 | Principles of Accounting I |
| BMGT221 | Principles of Accounting II |
| BMGT340 | Business Finance |
| **Total Credits** | **58-63** |

1 Or honors sequence: MATH340-MATH341.Completion of MATH340 satisfies the requirement for MATH241; completion of MATH340-MATH341 satisfies the requirement for MATH240-MATH241-MATH246.

2 At least four courses must be taken at College Park.

3 except STAT464

4 Intended to broaden the student's mathematical experience. (Other sequences might be approved by the Undergraduate Office but they would have to make use of mathematical ideas comparable to the sequences on this list.)

# Other Requirements for the Major

## Areas of Study

Within the Department of Mathematics there are a number of identifiable areas which students can pursue to suit their own goals and interests. They are briefly described below. Note that they do overlap and that students need not confine themselves to one of them.

### 1. Pure Mathematics

Courses that belong to this area include:

| Course | Title | Credits |
|---|---|---|
| MATH402 | Algebraic Structures | 3 |
| MATH403 | Introduction to Abstract Algebra | 3 |
| MATH404 | Field Theory | 3 |
| MATH405 | Linear Algebra | 3 |
| MATH406 | Introduction to Number Theory | 3 |
| MATH410 | Advanced Calculus I | 3 |
| MATH411 | Advanced Calculus II | 3 |
| MATH430 | Euclidean and Non-Euclidean Geometries | 3 |
| MATH432 | Introduction to Topology | 3 |
| MATH436 | Differential Geometry of Curves and Surfaces I | 3 |
| MATH437 | Differential Forms | 3 |
| MATH445 | Elementary Mathematical Logic | 3 |
| MATH452 | Introduction to Dynamics and Chaos | 3 |
| MATH456 | Cryptography | 3 |
| STAT410 | Introduction to Probability Theory | 3 |
| STAT420 | Theory and Methods of Statistics | 3 |
| Students preparing for graduate school in mathematics should include: | | |
| MATH403 | Introduction to Abstract Algebra | 3 |
| MATH405 | Linear Algebra | 3 |
| MATH410 | Advanced Calculus I | 3 |
| MATH411 | Advanced Calculus II | 3 |
| MATH463 | Complex Variables | 3 |
| or MATH660 | Complex Analysis I | |
| MATH432 | Introduction to Topology (is also desirable) | 3 |
| or MATH730 | Fundamental Concepts of Topology | |

Other courses from the above list and graduate courses are also appropriate.

### 2. Secondary Teaching

In addition to the courses required by the Secondary Education Track, the following courses are particularly suited for students preparing to teach:

| Course | Title | Credits |
|---|---|---|
| MATH401 | Applications of Linear Algebra | 3 |
| MATH406 | Introduction to Number Theory | 3 |
| MATH445 | Elementary Mathematical Logic | 3 |
| MATH470 | Mathematics for Secondary Education | 3 |
| MATH475 | Combinatorics and Graph Theory | 3 |

Students who are interested in secondary teaching should contact also the College of Education for certification requirements and other information: www.education.umd.edu/studentinfo (https://

academiccatalog.umd.eduHTTP://www.education.umd.edu/studentinfo/).

### 3. Statistics

For a student with a Bachelor's degree seeking work requiring some statistical background, the minimal program is STAT400-STAT401. To work primarily as a statistician, one should combine STAT400-STAT401 with STAT430 and at least one more statistics course, most suitably, STAT440. A deeper sequence is STAT410, STAT420, STAT430. This offers a better understanding and wider knowledge of statistics and is a general purpose program (i.e., does not specify one area of application). For economics applications,

MATH424, STAT400, STAT401, STAT430, STAT440 should be considered. To prepare for graduate work, STAT410 and STAT420 give the best background, with STAT430, STAT440 added at some later stage.

### 4. Computational Mathematics

There are a number of math courses which emphasize the computational aspects of mathematics including the use of the computer. They are:

| Course | Title | Credits |
|---|---|---|
| AMSC460 | Computational Methods | 3 |
| AMSC466 | Introduction to Numerical Analysis I | 3 |
| MATH431 | Geometry for Computer Applications | 3 |
| MATH456 | Cryptography | 3 |
| MATH475 | Combinatorics and Graph Theory | 3 |
| STAT430 | Introduction to Statistical Computing with SAS | 3 |

Students interested in this area should take the CMSC supporting sequence as soon as possible.

### 5. Applied Mathematics

The courses that lead most rapidly to applications are the courses listed above in 3 and 4 and

| Course | Title | Credits |
|---|---|---|
| MATH401 | Applications of Linear Algebra | 3 |
| MATH416 | Applied Harmonic Analysis: An Introduction to Signal Processing | 3 |
| MATH420 | Mathematical Modeling | 3 |
| MATH452 | Introduction to Dynamics and Chaos | 3 |
| MATH462 | Partial Differential Equations | 3 |
| MATH464 | Transform Methods | 3 |

A student interested in applied mathematics should obtain, in addition to a solid training in mathematics, a good knowledge of at least one area in which mathematics is currently being applied. Concentration in this area is good preparation for employment in government and industry or for graduate study in applied mathematics.

## GRADUATION PLANS

Click here (https://cmns.umd.edu/undergraduate/advising-academic-planning/academic-planning/four-year-plans/four-year-plans-gened/) for roadmaps for graduation plans in the College of Computer, Mathematical, and Natural Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Mathematics Minor

1117 Mathematics Building
Phone: 301-405-5053
http://www-math.umd.edu

**Program Advisor:** Ida Chan

The Department of Mathematics offers a minor in Mathematics for students majoring in other disciplines. The goal of the minor in Mathematics is to provide the student with significant mathematical skills and a perspective on the discipline.

## REQUIREMENTS

The requirements for the minor include at least 22 credits (19 credits if exempted from MATH310) beyond first-year calculus and are outlined below:

| Course | Title | Credits |
|---|---|---|
| MATH241 | Calculus III | 4 |
| or MATH340 | Multivariable Calculus, Linear Algebra and Differential Equations I (Honors) | |
| Select one of the following: | | 3-4 |
| MATH240 | Introduction to Linear Algebra | |
| MATH461 | Linear Algebra for Scientists and Engineers | |
| MATH341 | Multivariable Calculus, Linear Algebra, Differential Equations II (Honors) | |
| MATH310 | Introduction to Mathematical Proof (unless exempted) | 3 |
| Select one theoretical course from the following: | | 3 |
| MATH403 | Introduction to Abstract Algebra | |
| MATH405 | Linear Algebra | |
| MATH410 | Advanced Calculus I | |
| Select one algebra course from the following: | | 3 |
| MATH401 | Applications of Linear Algebra | |
| MATH402 | Algebraic Structures | |
| MATH403 | Introduction to Abstract Algebra | |
| MATH405 | Linear Algebra | |
| MATH406 | Introduction to Number Theory | |
| Select one analysis course from the following: | | 3 |
| MATH410 | Advanced Calculus I | |
| MATH416 | Applied Harmonic Analysis: An Introduction to Signal Processing | |
| MATH462 | Partial Differential Equations | |
| MATH463 | Complex Variables | |
| MATH464 | Transform Methods | |
| Select one probability course from the following: | | 3 |
| STAT400 | Applied Probability and Statistics I | |
| STAT410 | Introduction to Probability Theory | |
| Others as approved by UGO | | |
| **Total Credits** | | **22-23** |

**Note:** *If additional credits are needed in order to fulfill the 22-credit (19 credits if exempted from* MATH310*) minimum, any 400-level MATH-STAT-AMSC courses except* MATH478*,* MATH480-MATH484*,* MATH489,MATH498*, and* STAT464 *are acceptable.*

Other issues related to the minor in Mathematics:

- The minor in Mathematics is NOT open to Mathematics majors.
- The student will need to achieve at least a "C-" (1.7) in each minor course and an overall minor GPA of 2.0.
- No more than one of the 400-level courses for the minor in Mathematics may be taken at an institution other than the University of Maryland, College Park.

# Statistics Minor

1117 Mathematics Building
Phone: 301-405-5053
http://www-math.umd.edu

**Program Advisor:** Ida Chan

The Department of Mathematics offers a minor in Statistics for students whose majors are not Mathematics. The goal of the minor in Statistics is to provide the student with a substantial number of courses that are statistical in nature and involve a substantial amount of mathematics.

## REQUIREMENTS

The requirements entail 16 credits:

| Course | Title | Credits |
|---|---|---|
| MATH241 | Calculus III | 4 |
| or MATH340 | Multivariable Calculus, Linear Algebra and Differential Equations I (Honors) | |
| Select one of the following pairs of courses: | | |
| STAT400 & STAT401 | Applied Probability and Statistics I and Applied Probability and Statistics II | 6 |
| OR | | |
| STAT410 & STAT420 | Introduction to Probability Theory and Theory and Methods of Statistics | 6 |
| OR | | |
| STAT410 & STAT401 | Introduction to Probability Theory and Applied Probability and Statistics II | 6 |
| STAT430 | Introduction to Statistical Computing with SAS | 3 |
| Select one of the following: | | |
| A third course from the pairs above, if not already taken | | |
| STAT440 | Sampling Theory | 3 |
| or STAT470 | Actuarial Mathematics | |
| or ECON422 | Econometrics | |
| or other courses as deemed appropriate | | |

Other issues related to the minor in Statistics:

- The minor in Statistics is NOT open to Mathematics majors.
- The student will need to achieve at least a "C-" (1.7) in each minor course and an overall minor GPA of 2.0.
- A student may use a maximum of 2 courses to satisfy the requirements of both a major and the minor in Statistics.
- No more than 2 courses for the minor in Statistics may be taken at an institution other than the University of Maryland, College Park. In addition, no more than one upper-level course may be taken at an institution other than the University of Maryland, College Park.

# Physics

**College of Computer, Mathematical, & Natural Sciences**
1309 John S. Toll Physics Building
Phone: 301-405-5979
ugrad@physics.umd.edu
http://umdphysics.umd.edu

Housed within a large, diverse research university, Maryland Physics is one of the largest departments in the nation. Exploring more than 30 fields of physics, our faculty and students work together on some of today's most cutting edge physics research. Our laboratories and theoretical centers consistently generate provocative results, and collaborations with peer institutions, government agencies and private industry open up even more opportunities for discovery. From College Park to the South Pole, the University of Maryland is impacting the field of physics worldwide. Along with a rigorous academic curriculum and an ideal Washington D.C. location, this productive research (https://umdphysics.umd.edu/research.html) program forms the foundation of a first-class educational experience. Our undergraduates are sought after by premier graduate schools and a competitive marketplace; and our graduate students advance to challenging careers in government, industry and academia.

## PROGRAMS

### Major

- Physics Major (p. 361)

### Minor

- Physics Minor (p. 363)

## ADVISING

Advising for undergraduates is available throughout the year in Room 1309 PHY. For early registration, advising is mandatory; students should check Testudo for their early registration date and email ugrad@physics.umd.edu for information about advising appointments. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the departmental advisor to make appropriate plans.

## OPPORTUNITIES

### Honors Program

#### Departmental Honors in Physics

The Departmental Honors Program in Physics was established to recognize and encourage independent and creative scholarship in physics by providing superior undergraduate physics majors the opportunity for advanced and intensive study. The central component of departmental honors in physics is participation in undergraduate research. To earn high honors in physics, students must produce and defend an honors thesis/document based on their own research. The committee's decision whether to award high honors will be based on the

quality of the thesis and defense. To earn honors in physics, the student must pass an oral exam probing the depth of their understanding of physics from their courses and research involvement or complete an approved graduate level PHYS course with a grade of B or higher.

### Requirements for Graduation with Departmental Honors in Physics

1. Have earned a 3.00 or higher overall GPA and a 3.30 or higher GPA for all physics major required courses at graduation time.
2. Complete one of the following research courses PHYS386 , PHYS389, PHYS399 or PHYS499.
3. For High Honors, students must complete a research project with a Physics faculty member and defend a senior thesis or paper based on their original research. A student's defense committee should include the following people: the student's research mentor, the chair of the Physics Honors Program, and an additional Physics faculty member.
4. For "regular" Honors, students must either pass an oral exam given by a committee of at least two Physics faculty members or complete an approved, graduate level PHYS course with a grade of B or higher.

Note: Students who do not meet the criteria in items 1) and 2) above may submit an appeal to the Physics Honors Committee. The Physics Honors Committee may use other considerations (instructor evaluations, research activity, etc.) to award the Honors citation. Students who do not meet the criteria and are not awarded a departmental honors citation will not receive any negative record regarding the Physics Honors Program on any official document.

## Student Societies and Professional Organizations

Society of Physics Students (SPS); Sigma Pi Sigma

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu. Departmental scholarships for undergraduates in Physics include the following:

- Angelo Bardasis Memorial Scholarship
- Joseph Helfand Memorial Scholarship in Physics
- Professor William M. MacDonald Physics Scholarship
- Physics PALS Scholarship
- University of Maryland Department of Physics NSF Scholarships in Science, Technology, Engineering and Mathematics

## Awards and Recognition

Jerry B. Marion Award

IPST Monroe Martin Prize for Undergraduate Research in Physics

## Study Abroad Program

Physics in Florence (https://globalmaryland.umd.edu/offices/education-abroad/program/11619/)

# Physics Major

**Notice of Addendum:** The requirements for this program were updated effective Fall 2024 and have been published on Addenda to this Catalog (p. 1115).

**Program Director:** Carter Hall, Ph.D.

Physics is an exciting and rewarding field of study. Physicists make important discoveries that often change the way we live by examining the way things work, and there are still many discoveries to be made.

At Maryland, physics majors benefit from small class-sizes, outstanding teachers and very talented classmates. However, we believe that the most important physics education occurs outside the classroom, and we encourage all of our majors to participate in cutting-edge research with our internationally recognized faculty. Through participation in research projects, our students learn what it takes to conduct world-class scientific research. Whether students decide to continue to study physics in graduate school or work in fields such as engineering, software development, law, business or education, a bachelor's degree in physics from Maryland provides an excellent foundation.

## Program Learning Outcomes

Students are expected to fully engage with the curriculum and the opportunities presented for learning and research. Having completed the degree program, students should have acquired the following knowledge and skills:

1. A thorough knowledge of the core areas of physics, including mechanics, electricity and magnetism, thermal physics, and quantum mechanics at a level compatible with admission to graduate programs in physics at peer institutions.
2. The ability to analyze and interpret quantitative results, both in the core areas of physics and in complex problems that cross multiple core areas.
3. An ability to assess and solve unfamiliar problems in physics using the knowledge and skills acquired.
4. The ability to use contemporary experimental apparatus common to the study of physical phenomena, and have the ability to acquire, analyze and interpret scientific data.
5. The ability to communicate scientific results effectively, both verbally and in writing.

# REQUIREMENTS

**Notice of Addendum:** The requirements for this program were updated effective Fall 2024 and have been published on Addenda to this Catalog (p. 1115).

| Course | Title | Credits |
|---|---|---|
| **Courses Required for All Specializations** | | |
| PHYS170 | Professional Physics Seminar | 1 |
| PHYS171 | Introductory Physics: Mechanics | 3 |
| PHYS265 | Introduction to Scientific Programming [1] | 3 |
| PHYS272 | Introductory Physics: Fields | 3 |
| PHYS273 | Introductory Physics: Oscillations and Waves | 3 |
| PHYS275 | Experimental Physics I: Mechanics and Waves | 2 |
| PHYS276 | Experimental Physics II: Electricity and Magnetism | 2 |
| MATH140 | Calculus I | 4 |

| | | |
|---|---|---|
| MATH141 | Calculus II | 4 |
| MATH241 | Calculus III | 4 |
| MATH243 | Introduction to Linear Algebra and Differential Equations | 4 |
| or MATH240 & MATH246 | Introduction to Linear Algebra and Differential Equations for Scientists and Engineers | |
| **Total Credits** | | **33** |

# Additional Courses for Specializations

Complete one of the following specializations: Physics (p. 362), Education Physics (p. 362), Biophysics (p. 362), or Applied Physics (p. 362).

**ADDITIONAL COURSES REQUIRED FOR THE PHYSICS MAJOR:**

| Course | Title | Credits |
|---|---|---|
| PHYS313 | Electricity and Magnetism I | 4 |
| PHYS371 | Modern Physics | 3 |
| PHYS375 | Experimental Physics III: Electromagnetic Waves, Optics and Modern Physics | 3 |
| PHYS401 | Quantum Physics I | 4 |
| PHYS402 | Quantum Physics II | 3 |
| PHYS404 | Introduction to Statistical Thermodynamics | 3 |
| PHYS405 | Advanced Experiments [2] | 3 |
| PHYS410 | Classical Mechanics | 3 |
| PHYS413 | Electricity and Magnetism II | 3 |
| PHYS4XX | (Advanced Physics Elective) [3] | 3 |
| PHYS4XY | (Advanced Physics Elective) [3] | 3 |
| **Total Credits** | | **35** |

**ADDITIONAL COURSES REQUIRED FOR THE EDUCATION PHYSICS SPECIALIZATION:**

| Course | Title | Credits |
|---|---|---|
| **Introductory Education Courses** | | |
| TLPL101 | Inquiry Approach to Teaching STEM (Step 1) | 1 |
| TLPL102 | Inquiry Teaching of STEM in Middle School | 2 |
| **Upper-level and Supporting Courses** | | |
| TLPL401 | Student-Centered Curriculum and Instruction | 3 |
| TLPL414 | Knowing and Learning in Mathematics and Science | 3 |
| TLPL415 | Perspectives in Science | 3 |
| EDHD426 | Cognitive and Motivational Literacy Content | 3 |
| PHYS313 | Electricity and Magnetism I | 4 |
| PHYS371 | Modern Physics | 3 |
| PHYS375 | Experimental Physics III: Electromagnetic Waves, Optics and Modern Physics | 3 |
| One of the following: | | 3-4 |
| PHYS401 | Quantum Physics I | |
| PHYS404 | Introduction to Statistical Thermodynamics | |
| PHYS410 | Classical Mechanics | |
| PHYS413 | Electricity and Magnetism II | |
| PHYS4XY | (Advanced Physics Elective) | 3-4 |
| **Total Credits** | | **31-33** |

The Education Physics area of concentration is designed to accommodate students obtaining a teaching certificate through the College of Education. However, completing all the courses in the Education Physics area of concentration does not in itself satisfy all requirements for obtaining a teaching certificate. Students pursuing the Education Physics area of concentration who want to also obtain a teaching certificate in secondary education must first apply and be admitted to the Secondary Education Program in the College of Education and then complete additional courses in that program.

**ADDITIONAL COURSES REQUIRED FOR THE BIOPHYSICS SPECIALIZATION:**

| Course | Title | Credits |
|---|---|---|
| BSCI170 | Principles of Molecular & Cellular Biology | 3 |
| BSCI171 | Principles of Molecular & Cellular Biology Laboratory | 1 |
| CHEM131 | Chemistry I - Fundamentals of General Chemistry | 3 |
| CHEM132 | General Chemistry I Laboratory | 1 |
| CHEM231 | Organic Chemistry I | 3 |
| CHEM232 | Organic Chemistry Laboratory I | 1 |
| CHEM241 | Organic Chemistry II | 3 |
| CHEM242 | Organic Chemistry Laboratory II | 1 |
| CHEM271 | General Chemistry and Energetics | 2 |
| CHEM272 | General Bioanalytical Chemistry Laboratory | 2 |
| BSCI330 | Cell Biology and Physiology | 4 |
| BCHM461 | Biochemistry I | 3 |
| PHYS313 | Electricity and Magnetism I | 3 |
| PHYS371 | Modern Physics | 3 |
| PHYS404 | Introduction to Statistical Thermodynamics | 3 |
| PHYS4XY | | 3 |
| PHYS483 | (Biophysics) | 3 |
| One of the following: | | 3 |
| PHYS375 | Experimental Physics III: Electromagnetic Waves, Optics and Modern Physics | |
| BSCI4XY - Any Approved 400-level BSCI Elective | | |
| Note: Students interested in medical school should consult a pre-med advisor (prehealth.umd.edu) for additional course recommendations. | | |
| **Total Credits** | | **45** |

**ADDITIONAL COURSES REQUIRED FOR THE APPLIED PHYSICS SPECIALIZATION:**

| Course | Title | Credits |
|---|---|---|
| ENME272 | Introduction to Computer Aided Design | 2 |
| PHYS313 | Electricity and Magnetism I | 4 |
| PHYS371 | Modern Physics | 3 |
| PHYS375 | Experimental Physics III: Electromagnetic Waves, Optics and Modern Physics | 3 |
| PHYS401 | Quantum Physics I | 4 |
| PHYS404 | Introduction to Statistical Thermodynamics | 3 |
| PHYS413 | Electricity and Magnetism II | 3 |
| PHYS474 | Computational Physics | 3 |
| PHYS456 | Making Physics Experiments | 3 |
| One of the following: | | 3 |

| | | |
|---|---|---|
| PHYS485 | Electronic Circuits | |
| PHYS487 | (Computerized Instrumentation) | |
| PHYS4XY - Any Approved 400-level PHYS Elective | | |
| **Total Credits** | | **31** |

1 Students with prior programming experience may take PHYS474, an upper-level, computational physics course, instead of PHYS265. This advanced course may be used for an Advanced Physics Elective as well.

2 PHYS405 in The Physics Major may be replaced by the two course sequence: PHYS406, PHYS407.

3 Students completing a second major from a CMNS or Engineering department may use an upper-level course from that program in place of one of the Advanced Physics Electives.

## OTHER REQUIREMENTS FOR THE MAJOR

Students must complete all courses required for the major with a grade of "C-" or higher.

## GRADUATION PLANS

Click here (https://cmns.umd.edu/undergraduate/advising-academic-planning/academic-planning/four-year-plans/four-year-plans-gened/) for roadmaps for graduation plans in the College of Computer, Mathematical, and Natural Sciences.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Physics Minor

1309 Physics Building
Phone: 301-405-5979
ugrad@physics.umd.edu
http://umdphysics.umd.edu

**Program Director:** Carter Hall, Ph.D.

This minor provides a rigorous foundation in physics for students who choose not to complete the entire physics major.

Students interested in earning a minor in physics should contact the undergraduate advisor for the Physics Department.

## REQUIREMENTS

The minor begins with a set of two introductory courses (6 credits) in electromagnetic fields PHYS260 or PHYS272) and waves (PHYS270 or PHYS273). As part of this introduction to Physics, the minor also requires a one-credit introductory physics laboratory (PHYS174, PHYS261, or PHYS271) involving techniques of data gathering and analysis. To obtain a deeper understanding of physics, the minor requires three additional upper-level courses (3-4 credits each), which students can select from the list below.

- Other upper level Physics courses can be substituted only with approval from the Department's undergraduate director and the Faculty Minor Advisor.
- All courses must be completed with a grade of "C-" or better to be counted towards the minor.
- No more than 7 credits in this minor can count toward major requirements. Students with more than 7 credits of overlap must substitute non-overlapping 300 or 400 level courses from the above list to reduce the overlap to no more than 7 credits.
- Physics majors and students majoring in Astronomy are not eligible to complete the Physics Minor due to the large number of overlapping course requirements.

## Courses Required for the Minor

| Course | Title | Credits |
|---|---|---|
| Select one of the following: | | 1 |
| PHYS174 | Physics Laboratory Introduction | |
| PHYS261 | General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | |
| PHYS271 | General Physics: Electrodynamics, Light, Relativity and Modern Physics (Laboratory) | |
| PHYS272 | Introductory Physics: Fields | 3 |
| or PHYS260 | General Physics: Electricity, Magnetism and Thermodynamics | |
| PHYS273 | Introductory Physics: Oscillations and Waves | 3 |
| or PHYS270 | General Physics: Waves, Optics, Relativity and Modern Physics | |
| Select three of the following: | | 9-12 |
| PHYS371 | Modern Physics | |
| PHYS373 | Mathematical Methods for Physics II | |
| PHYS375 | Experimental Physics III: Electromagnetic Waves, Optics and Modern Physics | |
| PHYS401 | Quantum Physics I | |
| PHYS402 | Quantum Physics II | |
| PHYS404 | Introduction to Statistical Thermodynamics | |
| PHYS410 | Classical Mechanics | |
| PHYS411 | Intermediate Electricity and Magnetism | |
| PHYS474 | Computational Physics | |
| **Total Credits** | | **16-19** |

### Prerequisites

MATH140, MATH141, MATH241, MATH240, MATH246, PHYS171 are prerequisites for some of the courses in this program.

# College of Education

1204 Benjamin Building
Phone: 301-405-2344
http://education.umd.edu/studentinfo/

**Dean:** Kimberly Griffin, Ph.D.
**Associate Dean:** Ebony Terrell Shockley, Ph.D.

The College of Education is a professional college committed to preparing accomplished beginning and advanced-level professionals who can advance the learning and development of their students and who are ready to become leaders in their fields. The college seeks to foster the learning and development of PK-16 students through our educator preparation programs, leadership, research, advocacy, and partnerships. Educational inequities exist on multiple levels; therefore, we aim to prepare educators with the skills and commitments necessary to ensure equity for all students in the public schools and classrooms they will lead.

The college programs prepare educators, counselors, psychologists, administrators, researchers, and educational specialists. Graduates work with individuals from infancy through adulthood in schools, community agencies, colleges and universities. Educational programs are accredited/approved by the following: Association for Advancing Quality in Educator Preparation (AAQEP), Maryland State Department of Education (MSDE), and the American Psychological Association. Accreditation provides reciprocal certification with most other states that recognize national accreditation.

MSDE issues certificates to teach in the public schools of the state. In addition to graduation from an approved program, MSDE requires satisfactory scores on the state Praxis licensure exams for certification. At the time of graduation, the college informs MSDE of the graduates' eligibility for certification. Under Maryland law, criminal background checks may be required and considered by MSDE in the awarding of teaching certification, and by employers before granting employment in the teaching field. Certification may be denied or revoked for individuals who have been convicted of crimes of violence and/or crimes against children. Additionally, some Maryland counties require a criminal background check prior to placement in an internship.

# Admission Requirements

## Admission to Teacher Education Professional Course Work

Applicants to the University of Maryland who have declared an interest in education are admitted to a department in the college. All majors must meet the selective admission requirements for full admission into the College of Education in order to enroll in the professional sequence of the teacher education degree programs.

The admission process includes three steps:

1. **Pre-Admission Review:** Candidates must
   a. complete the English and math lower-level fundamental studies (six credits) with a grade of "C-" or better;
   b. earn 45 semester hours with an overall cumulative grade point average of at least 2.75 on a 4.0 scale;
   c. complete gateway and/or specialization or major requirements for the program area with a minimum 2.70 GPA, and earn at least a "B" in any Education course identified by the program as a specific gateway prerequisite;
   d. submit a personal goal statement that indicates an appropriate commitment to professional education;
   e. have prior experiences in the education field;
   f. submit three letters of recommendation/reference;
   g. receive satisfactory ratings on the College of Education Foundational Competencies/Model Code of Ethics for Educators (FC/MCEE) on the College of Education FC/MCEE Pre-Admissions Screening Form if formal evaluations have not yet occurred;
   h. submit criminal history disclosure statement; and,
   i. have passing scores on a test of basic skills as determined by the Maryland State Department of Education (currently Praxis CORE, SAT, ACT or GRE).
2. **Program Faculty review** the applications of the candidates who meet the above criteria and rate them on the following components:
   a. overall GPA,
   b. GPA in gateway/specialization/major,
   c. rating for prior experience,
   d. rating of recommendations,
   e. rating of application essay.
3. **The faculty sets a minimum cut score for eligibility** based upon several factors (e.g., instructional resource capacity of the program/department, Professional Development School (PDS) placement capacity in the certification area, availability of high quality mentors in the certification area, work force need in the state, etc.). Candidates meeting at least minimum cut scores are scheduled for interviews. Program faculty re-ranks candidates based on aggregate scores from the complete profile - i.e., the five factors in step 2 plus the interview. The highest ranking individuals using the aggregate score are offered admission. [The total number admitted is based on target enrollment guidelines.]

Admission application forms are available online (https://education.umd.edu/student-resources/student-services/undergraduate-studies-student-services-office/professional/). Only those who are admitted are able to enroll in the professional education sequence. An overall grade point average of 2.75 must be maintained after admission to Teacher Education to continue in the professional education programs. The program faculty is able to recommend selected other candidates for Discretionary Admission based on any of a variety of special considerations. Consult the Student Services Office (Room 1204 Benjamin Bldg.) for policies and procedures regarding Discretionary Admission.

Criteria for admission to the Teacher Education program apply to any teacher preparation program offered by the University of Maryland. Thus, undergraduates desiring a major in music education should apply to the College of Education for admission to the professional program in Teacher Education. Individuals who are not enrolled in the College of Education but who, through an established cooperative program with another college are preparing to teach, must meet all admission, scholastic and curricular requirements of the College of Education. The courses in the professional education sequence are restricted to teacher candidates who are enrolled in an approved teacher preparation program and degree-seeking majors who have met College of Education requirements for admission and retention.

***Gateway Requirements for Early Childhood, Elementary, and Middle School Math and Science Education Programs***

*In order to meet the Maryland State Department of Education's (MSDE's) institutional performance criteria for the Redesign (i.e., strong math and science background for early childhood and elementary education teacher*

*candidates), prospective majors in these programs need to fulfill additional performance criteria. In addition to the requirements for admission to teacher education that are listed above, early childhood and elementary education majors must satisfy the following gateway requirements:*

1. *Completion of a four-credit general education laboratory physical science, a four-credit general education laboratory biological science, Elements of Numbers and Operations (*MATH212*), and Elements of Geometry and Measurement (*MATH213*) with a minimum grade of "C-" in each class and a 2.7 cumulative GPA across all four courses.*
2. *Completion of Looking Inside Schools and Classrooms (TLPL251) or Exploring Teaching in Early Childhood (*EDHD220*) with a grade of "B-" or better.*
3. *Passing scores on a test of basic skills as determined by MSDE: SAT; ACT; GRE; or Praxis CORE: Academic Skills Assessments (Applicants will be required to meet the individual cut-off scores for each of the three Praxis CORE assessments. A composite score is not accepted for admission.)*

In keeping with the campus undergraduate admissions policy, the College of Education will admit as many freshmen as possible as "pre-service" education majors. Internal and external transfers who have completed fewer than 60 credits and who have not yet met the standards required for enrollment in the professional degree programs also will be admitted as "pre-service" education majors. For directly admitted freshmen, the above admission requirements will serve as the criteria for the sophomore (early childhood, elementary, and special education) or junior (secondary education) level review. For internal and external transfers, these criteria make up the "gateway." Teacher candidates who pass the sophomore/junior level review or the gateway will be admitted into the professional degree programs. Transfers with 60 or more credits will be granted permission to enroll as a pre-service major in education, provided they have maintained at least a 2.75 GPA and successfully completed the lower-level fundamental studies with a minimum grade of "C-" or better. These individuals will be given one semester to meet the requirements for admission to teacher education.

Detailed information regarding admission to the Teacher Education program, including the gateway requirements for Early Childhood, Elementary, or Middle School Math and Science Education, is available in the Student Services Office, Room 1204 Benjamin (301-405-2364).

# DEPARTMENTS

## Departments and Units

- Counseling, Higher Education and Special Education (p. 369)
- Human Development and Quantitative Methodology (p. 373)
- Teaching and Learning, Policy and Leadership (p. 379)

# ACADEMIC PROGRAMS

## Majors

- Early Childhood/Early Childhood Special Education Major (p. 375)
- Elementary Education Major (p. 380)
- Elementary/Middle Special Education Major (p. 370)
- Human Development Major (p. 377)
- Middle School Education Major (p. 383)
- Secondary Education Major - Art (p. 384)
- Secondary Education Major - English (p. 386)
- Secondary Education Major - Mathematics (p. 388)
- Secondary Education Major - Science (p. 389)
- Secondary Education Major - Social Studies (p. 391)
- Secondary Education Major - World Language (p. 394)

## Minors

- Disability Studies Minor (p. 369)
- Human Development Minor (p. 379)
- Leadership Studies Minor (p. 373)
- Secondary Education Minor (p. 396)
- Teaching English for Speakers of Other Languages (TESOL) Education Minor (p. 397)

## Certificates

- Leadership Studies Certificate (p. 372)
- Secondary Education Certificate (p. 384)

# COLLEGE REQUIREMENTS

## Undergraduate Degree Requirements/ Degree Options

The College of Education confers the degrees of Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) depending on the amount of liberal arts study included in a particular degree program. Minimum requirements for graduation are 120 semester hours. Specific departmental program requirements for more than the minimum must be fulfilled.

In addition to the university's general education requirements and the specific requirements for each curriculum, the college requires that all majors complete a Foundations of Education course (e.g., TLPL360) and, depending upon the teacher education major, three to twelve semester hours of reading course requirements. A grade of "C-" or better is required in all pre-professional and professional course work required for the major. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. A grade of "S" or "A-" is required in the teaching internship. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Model Code of Ethics for Educators and attain qualifying scores for the State of Maryland on a Test of Basic Skills (Praxis CORE, SAT, ACT, GRE), Praxis II and edTPA assessments. Detailed information about the Praxis assessments is available in the Student Services Office, Room 1204 Benjamin.

Exceptions to curricular requirements and rules of the College of Education must be recommended by the teacher candidate's advisor and department chairperson and approved by the Dean.

### Yearlong Internship

The yearlong internship, which is the culminating experience in the teacher preparation program, takes place in a collaborating school (i.e., partner school - Professional Development School (PDS)). Each teacher candidate's internship will vary according to the unique attributes of their teacher education program. All internships will provide teacher candidates with the opportunity to integrate theory and practice through a comprehensive, reality-based experience. The yearlong internship is arranged through the College of Education in collaboration with the school site coordinators, PDS Coordinators, and the designated schools in the partnership.

The yearlong internship is a full-time commitment. Interference with this responsibility because of employment or course work is strongly discouraged. Teacher candidates assigned to schools for this internship are responsible for their own transportation and living arrangements and should be prepared to travel to whichever school has been assigned. The student teaching internship requires a special fee. Please consult the course listings within Testudo (http://testudo.umd.edu/) for the current lab fee. During the teaching internship, teacher candidates should be prepared to adhere to the academic schedule/calendar for the school system in which they are placed.

In order to receive a yearlong internship placement, all teacher candidates must make application the semester prior to the internship year. Prospective interns must have been admitted to Teacher Education and have completed all prerequisites. Prior to assignment, all candidates in teacher preparation programs must have:

1. maintained a minimum overall grade point average of at least 2.75 with a minimum grade of "C-" in every course required for the major;
2. satisfactorily completed all other required course work in their program;
3. received a favorable recommendation from their department;
4. attained qualifying scores for the State of Maryland on a Test of Basic Skills (Praxis CORE, SAT, ACT, GRE) and Praxis II assessments;
5. applied for a year-long internship placement through the College of Education during the semester prior to the internship year;
6. received favorable ratings from prior supervised experiences in school settings;
7. received favorable evaluations on the College of Education Foundational Competencies/Model Code of Ethics for Educators; and
8. submitted a criminal history disclosure statement.

In addition, state law gives the local school to which the intern is assigned the discretion to require a criminal background check prior to placement. Early Childhood Education majors must have a certificate indicating freedom from tuberculosis and proof of immunization.

**Note:** All registrations in the teaching internship, regardless of whether an intern withdraws or takes a leave of absence, will be counted as an attempt under the campus repeat policy. Only two registrations will be allowed. After two registrations, further attempts at the teaching internship must be approved by the department and the school system professionals involved in the teacher candidate's internship experience.

## College of Education Foundational Competencies/Model Code of Ethics for Educators

All candidates in the UMD professional preparation programs are expected to demonstrate that they are prepared to work with children and youth in educational settings. This preparation results from the combination of successful completion of university coursework and field/internship experiences and the demonstration of important human characteristics and dispositions that all educators should possess. These characteristics and dispositions, the College of Education Foundational Competencies/Model Code of Ethics for Educators (FC/MCEE), are aligned with the Interstate Teacher Assessment and Support Consortium Model Core Teaching Standards and based upon the National Association of State Directors of Teacher Education and Certification Model Code of Ethics for Educators. The College of Education's FC/MCEE are grouped into five principles, which broadly define critical dimensions of ethical practice expected of teacher candidates:

- Principle I: Responsibility to the Profession
- Principle II: Responsibility for Professional Competence
- Principle III: Responsibility to Students
- Principle IV: Responsibility to the School Community
- Principle V: Responsible and Ethical Use of Technology and Social Media

The FC/MCEE serve several important functions, including, but not limited to:

1. providing information to those considering pre K-12 and community professional careers that will help such individuals in their career decision-making;
2. advising applicants of non-academic criteria considered in admissions decisions made by the university's pre K-12 and community professional preparation programs;
3. serving as the basis for feedback provided to candidates in these programs regarding their progress toward mastery of all program objectives; and
4. serving as the basis for the final assessment of attainment of graduation requirements and recommendation for certification.

Candidates in the undergraduate teacher preparation programs will be required to achieve satisfactory ratings on the College of Education FC/MCEE (or on the College of Education FC/MCEE Pre-Admissions Screening Form if formal evaluations have not yet occurred) as part of the college's selective admissions review in the sophomore or junior year. Self-assessments of candidates and faculty evaluations on the FC/MCEE also will occur during each field/internship experience. Teacher candidates will be monitored and given feedback throughout the program. At specified points, they will be notified of inadequacies that may prevent them from progressing through their program. Documentation and consensus regarding the teacher candidate's functioning will be sought before any action is taken. Candidates who experience deficiencies in any areas will be encouraged to seek appropriate professional help from the university or other sources. If the problem seems to be beyond remediation, admission and/or continuation in the professional programs, graduation, or recommendation for certification may be denied.

The COE FC/MCEE may be met with, or without, accommodations. The university complies with the requirements of Section 504 of the Rehabilitation Act and the Americans with Disabilities Act of 1990. Therefore, the College of Education will endeavor to make reasonable accommodations with respect to these standards for an applicant with a disability who is otherwise qualified. For detailed information on the College of Education-Foundational Competencies/Model Code of Ethics for Educators, see http://education.umd.edu/student-resources/student-services/undergraduate-studies-student-services/undergraduate-forms-and/.

## LiveText/Watermark Portfolio Requirement

The college uses a learning electronic portfolio and accreditation management system for its teacher preparation programs. An active subscription to LiveText by Watermark is a requirement for the courses that comprise the professional education curriculum. Teacher candidates will be expected to submit a number of their course and portfolio assignments through LiveText/Watermark.

The LiveText/Watermark account, which can be purchased at the University Book Center, is a one-time purchase that is comparable in price to the cost of a textbook. These accounts will last for a full year

after graduation so that education majors can use their electronic LiveText/Watermark portfolios in the job seeking process. For more information about LiveText by Watermark, contact Dr. Ebony Terrell Shockley, Associate Dean for Undergraduate Studies (eterrell@umd.edu).

# ADVISING

The Office of Student Services provides academic advising for Human Development majors, and for Teacher Education majors. Student Services provides academic advising regarding admission, orientation, registration, graduation, and certification. Advising is mandatory in the College of Education: Human Development and Teacher Education majors must be advised prior to registration each semester.

Teacher candidates receive an academic audit at each advising appointment and upon admission to the professional teacher education degree program. Undergraduates are expected to complete their degree program in a timely manner and to adhere to program benchmarks. Information about program benchmarks and four-year plans is available on the Student Services website at http://education.umd.edu/studentinfo/undergraduate_info/.

# OPPORTUNITIES

## Specialized Academic Programs

**Secondary Education Program options:** The College of Education has multiple pathways for individuals who are interested in teaching at the secondary level:

**The dual major option**, which is designed for incoming freshmen or sophomores, leads to the Bachelor's degree with a major in an academic content area plus a second major in secondary education. All secondary majors are required to have an academic content major which satisfies the requirements of the academic department and meets the standards for teacher certification. Candidates who follow the proposed sequencing of courses can complete both majors in four years with careful advisement and scheduling.

The **Certificate Program** requires completion of an academic major - including coursework specific to meet certification standards in the certificate area - and a bachelor's degree in an approved academic content area, plus the completion of a certificate program in secondary education to meet requirements in UMD's approved program for MSDE certification. Selected coursework from the minor in Secondary Education may be taken prior to admission to the Certificate Program option. *(The Certificate Program is currently under review. For additional information, contact the Office of Student Services, 1204 Benjamin.)*

The **Five-Year Integrated Master's with Certification Program** for content majors entering the junior or senior year, is for talented undergraduates with a minimum GPA of 3.0 who seek to combine undergraduate studies in the content area and professional education as a foundation for a focused professional year at the graduate level leading to secondary-level certification in the subject field and the Master of Education degree. Candidates who are admitted to the program complete their baccalaureate degrees with a major in the relevant content area and a minimum of 12 credits in professional education studies related to teacher certification requirements. In their fifth year, they enroll in a full-year internship and complete graduate-level professional studies that make them eligible for teacher certification and the Master of Education degree.

The **Mathematics Education** and **Science Education** programs are part of the Terrapin Teachers program. Terrapin Teachers is an innovative program designed to engage science and mathematics students in the teaching and learning process so that they are prepared by the end of their four undergraduate years to be highly skilled middle and secondary science and mathematics school teachers who can go on to teach and inspire their students, and enable them to not only know about science and math, but to use these disciplines in their everyday lives. For more information about Terrapin Teachers, see http://tt.umd.edu.

For detailed information about these secondary education program options, contact the Office of Student Services, 1204 Benjamin Building.

## College Honors Program

Undergraduate teacher education majors meeting certain scholastic requirements may participate in the College of Education Honors Program. The objective of this program is to examine the field of education at levels of depth and breadth that go beyond that provided by any one teacher preparation sequence. The program consists of three components: group, cross-disciplinary, and individual study. The Honors Program represents an excellent springboard for teacher candidates with aspirations to go on to graduate school. For further information contact the College of Education Office of Student Services (1204 Benjamin).
**Note: Program is currently under review.**

## Approved Student Societies and Professional Organizations

The college sponsors chapters of Phi Delta Kappa; the Teacher Education Association of Maryland Students (TEAMS), a state/national education association; the College of Education Student Assembly, a student governance organization; the Association of Aspiring Educators of Color; and Kappa Delta Pi, an honor society in education.

The Plan of Organization for the College of Education calls for undergraduate student representation on both the College of Education Assembly and College Senate. These organizations assume a critical role in policy development for the College of Education. The Assembly meets at least once a year during the fall semester for its annual meeting. Senate meetings typically occur once a month during the fall and spring semesters. Nine full-time undergraduates are elected as voting members of the College Assembly. One undergraduate student is elected to serve as a delegate to the College of Education Senate. For further information about the College Assembly or Senate, contact the Office of Student Services, Room 1204 Benjamin.

In several departments there are informal organizations of students. Students should contact the individual departments or, in the case of college-wide groups, the Student Services office, for additional information regarding these organizations.

## Student Engagement and Service Units

### Office of Student Services

1204 Benjamin Building
Phone: 301-405-2344
http://education.umd.edu/studentinfo/

The Office of Student Services provides academic advising for education majors regarding admission, orientation, registration, graduation, and certification. Information about the Praxis assessments and the College of Education Scholarships also is available in Student Services.

### Educational Technology Services

0234 Benjamin Building
Phone: 301-405-3611

Educational Technology Services helps the College advance the effective use of technology in support of student learning. The Center provides a range of technology and media resources and services to faculty and students. For more information about ETS resources and services, see http://education.umd.edu/about-college/administration/ets/.

### Career Center

3100 Hornbake Library
Phone: 301-314-7225
http://CareerCenter.umd.edu

The Careers4Terps (https://careers.umd.edu/careers4terps/) includes job listings in private and public schools and institutions of higher learning, on-campus interviews with in-state and out-of-state school systems, and resume referral to employers interested in hiring education majors. Information and applications from school systems throughout the country, job search publications, and various employment directories also are available in the Career Center.

## Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information (including details regarding TEACH grants), visit: http://financialaid.umd.edu.

In addition, contributions from the College of Education Alumni and Friends have made it possible to award a number of $1,000 scholarships to students enrolled in majors in the College of Education each academic year. These awards are based on the following criteria:

- academic performance
- financial need
- leadership and contributions to the field of education or
- commitment to potential leadership in the field of education
- encouragement of a diverse and multicultural community

Scholarship applications may be obtained in the Office of Student Services (1204 Benjamin). Applications also are available on-line: http://education.umd.edu/admissions/financial-aid-scholarships/.

For more information about the College of Education Scholarships, including deadlines and application materials, contact the Office of Student Services (1204 Benjamin).

## Awards

### Maryland Teachers of Promise Program

Each year, the college identifies five to seven of its most promising gifted pre-service educators, who are getting ready to graduate and who plan to teach in the state of Maryland. These individuals become part of a select group of outstanding pre-service and veteran teachers participating in a mentor-protégé program and educational Institute. As part of the program, each teacher candidate is paired with an award-winning veteran teacher mentor (Teacher of the Year, Milken National Educator, Blue Ribbon School Master Teacher, etc.), who provides guidance and support during the transition period into teaching. For more information about this program, contact Dr. Ebony Terrell Shockley, Associate Dean (eterrell@umd.edu).

## Departments and Centers

The college includes a number of centers that offer special resources and facilities to students, faculty, and the community, including the following:

- Center for Children, Relationships, and Culture
- Center for Diversity and Inclusion in Higher Education
- Center for Early Childhood Education and Intervention
- Center for Educational Innovation and Improvement
- Center of Integrated Latent Variable Research
- Center for Mathematics Education
- Center for Science and Technology in Education
- Center for Young Children
- Counseling, Assessment, Research, and Educational Services Psychological Center
- Institute for the Study of Exceptional Children and Youth
- Language and Literacy Research Center
- Maryland Assessment Research Center
- Maryland Equity Project
- Maryland Institute for Minority Achievement and Urban Education
- Multilingual Research Center

## Special Advantages and Facilities

Students in the College of Education have the opportunity to work with an exemplary faculty. Among our ranks are nationally known faculty researchers who have made significant contributions to advancing theory and improving professional practice. In addition, the college's strategic location provides students with research opportunities that are unparalleled. Teacher candidates can complete their teaching internship and conduct research in school districts with highly diverse populations. The region also provides access to several research libraries, government agencies, not-for-profit organizations, and educational associations.

The College of Education offers many special resources and facilities to students, faculty, and the community, including the following centers:

- ***The Center for Mathematics Education*** provides a mathematics laboratory for undergraduate and graduate students. Occasionally there are tutoring services for children and adolescents. These services are offered in conjunction with special graduate and undergraduate courses in elementary and secondary school mathematics. Center faculty are engaged in research in mathematics education, serve as consultants to school systems and instructional publishers, and provide in-service teacher education in addition to graduate degree programs.
- **The *Center for Young Children*** is part of the Institute for Child Study/Human Development in the College of Education. It offers a creative learning experience for children three, four, and five years old. The center engages in child study, curriculum development, and teacher preparation. Its research and observation facilities are available to parents, faculty, and other persons concerned with the care and education of young children.

# Counseling, Higher Education and Special Education

**College of Education**
3214 Benjamin
Phone: 301-405-6515/4
http://education.umd.edu/academics/departments/chse/

The Department of Counseling, Higher Education, and Special Education (CHSE) incorporates three outstanding former departments, all with programs having top rankings in U.S. News and World Report, 2023: Counseling and Personnel Services (ranked #1), Higher Education (ranked #12), and Special Education (ranked #14). The Special Education Program is designed to prepare highly qualified teachers at the undergraduate and graduate levels, and to prepare researchers, teacher educators, and leaders at the doctoral level in the field of special education. We promote excellence in education and human services across the spectrum of abilities and individual differences, from birth to adulthood, in a wide range of settings.

## PROGRAMS

### Major

- Elementary/Middle Special Education Major (p. 370)

### Minors

- Disability Studies Minor (p. 369)
- Leadership Studies Minor (p. 373)

### Certificate

- Leadership Studies Certificate (p. 372)

## ADVISING

Advising is mandatory for all special education majors. For more information or to schedule an advising appointment, contact the Office of Student Services, ed-advising@umd.edu (301-405-2364).

## OPPORTUNITIES

### Fieldwork Opportunities

Candidates participate in a number of early field experiences during their junior year. A two-semester internship is arranged for teacher candidates in their senior year. The internship and other field experiences allow teacher candidates to apply concepts and techniques presented in university-based courses in a field placement setting.

### Internships

The yearlong, two-semester internship, which is the culminating experience in the teacher preparation program, takes place in a partner school or a Professional Development School (PDS) during the senior year of the program.

### Student Societies and Professional Organizations

The Special Education program encourages student participation in extracurricular activities within and outside of the university. Opportunities include the Council for Exceptional Children. For more information, contact the Office of Student Services in 1204 Benjamin Building.

### Scholarships and Financial Assistance

The Special Education Endowed Fund in honor of Jean R. Hebeler is devoted to supporting candidates preparing to work with individuals with disabilities. Awards are competitive. Applications are accepted in the spring semester for the following academic year.

In addition, the College of Education offers a number of scholarships. Please visit http://education.umd.edu/admissions/financial-aid-scholarships/ for more information. The Office of Student Financial Aid (OSFA) administers federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

# Disability Studies Minor

**Program Director:** Carolyn M. Fink, Ph.D.

The Disability Studies minor enhances student understanding and inquiry for an evolving, inclusive, interconnected world by reframing disability as a social construct that exists along a continuum of human diversity.

## Program Learning Outcomes

1. Increase cultural competency by critically examining disability as a global societal phenomenon.
2. Acquire an awareness and understanding of the various roles and rights of disability in history and in modern society.
3. Explore the Disability Studies' framework within their field of study and intended profession to enhance advocacy, inclusive best practices, and their role as a change agent.
4. Examine ways in which systems inhibit and promote full participation of people with disabilities.
5. Develop analytical and observation skills and apply inclusive disability frameworks to academic, professional, and personal lives.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Lower Division Foundational Courses** [1] | | **6** |
| CHSE205 | Disability: From Stigma and Sideshow to Mainstream and Main Street | |
| EDSP220 | Disability in Community: Access, Accommodation, and Adaptation | |
| or HESP202 | Introduction to Hearing and Speech Sciences | |
| **Elective Courses** [1] | | **9** |
| Select three of the following courses: | | |
| BMGT360 | Strategic Management of Human Capital | |
| COMM382 | Essentials of Intercultural Communication | |
| INST466 | Technology, Culture, and Society | |
| EDHD310 | Your Brain on Education: The Neuroscience of Learning and Development | |
| EDSP220 | Disability in Community: Access, Accommodation, and Adaptation | |
| EDSP376 | Fundamentals of Sign Language | |
| EDSP470 | Introduction to Special Education | |

| | |
|---|---|
| EDSP311 | Peer Mentor Training and Certification |
| EDSP476 | Communicating with Sign Language |
| EDSP498 | Special Problems in Special Education [2] |
| FMSC330 | Family Health: Health Happens in Families |
| ENME444 | Assistive Robotics [3] |
| HESP202 | Introduction to Hearing and Speech Sciences |
| HESP386 | Experiential Learning |
| KNES334 | Adapted Physical Activity: Empowering People with Disabilities to Lead a Healthy and Active Lifestyle |
| PLCY302 | Examining Pluralism in Public Policy |
| PSYC354 | Multicultural Psychology in the U.S. |
| SOCY335 | Sociology of Health and Illness |
| **Total Credits** | **15** |

[1] All courses listed are 3 credit courses.
[2] Students enrolling in EDSP498 must register for 3 credits.
[3] Requires permission of the School of Engineering.

Students must pass all courses for the minor with a grade of C or better. No more than six credits can come from off-campus (study abroad, transfer, etc.). Nine of the 15 credits required for the minor must be at the 300 course level or above.

Other elective courses may be included in the DS minor with program advisor's approval.

# Elementary/Middle Special Education Major

**Program Director:** Dawn Jacobs Martin, Ph.D.

The Elementary/Middle Special Education Program offers a rigorous undergraduate teacher preparation program that prepares teachers with the necessary skills to assess, plan, teach, and evaluate children with disabilities. The program is nationally ranked, recognized as one of the top preparation programs in the country, and focuses on students with high incidence disabilities and low incidence disabilities. Students who complete the program graduate with a Bachelor of Science in Special Education. The program offers two certification tracks: *Track 1: Severe Disabilities* leads to Maryland Certification in Special Education in Elementary/Middle (Grades 1-8) AND Maryland Endorsement in Severe Disabilities (Birth to Age 21); *Track 2: Inclusive Education* leads to Maryland Certification in Special Education in Elementary/Middle (Grades 1-8) AND Maryland Certification in Elementary Education (Grades 1-6). Program coursework meets state, university, and college requirements and is designed to provide an understanding of human development, including the basic psychological and sociological principles of human behavior. There is an instructional focus on universal design of learning/assistive technology; academic, language, motor, and cognitive development; social and educational needs of individuals with disabilities; diagnostic and educational assessment; evidenced-based instructional procedures and materials; national standards and curriculum development; classroom and behavior management; effective communication and partnership with parents and families of children with disabilities; community resource planning; and local, state, and federal laws and policies concerning children and youth with and without disabilities. The program ends with a required two-semester internship during the senior year that focuses on the application of teaching skills.

Courses offered in the special education program may be found under the acronym EDSP.

**Note**: Please contact an advisor in the Office of Student Services (1204 Benjamin) for additional information

## Admission to the Major

Prior to formal acceptance as a special education major, undergraduates are required to enroll in a special education introductory course (EDSP210/EDSP470), which provides a survey of the history and current issues in special education. Upon successful completion of the introductory course and 45 semester hours of requirements, teacher candidates apply for formal admission to the professional program by submitting an application with a statement of intent specifying their professional goals. To be accepted as a full special education major, teacher candidates must fulfill the College of Education requirements for admission to Teacher Education, as well as the following program requirements:

1. Completion of course work indicated below:

| Course | Title | Credits |
|---|---|---|
| EDSP210 | Foundations of Special Education: Inclusive Practices | 3 |
| STAT100 | Elementary Statistics and Probability | 3 |
| MATH212 | Elements of Numbers and Operations | 3 |
| LAB SCIENCE 1 | Physical, Biological, or Environmental [1] | |
| LAB SCIENCE 2 | Physical, Biological, or Environmental [1] | |
| PSYC100 | Introduction to Psychology | 3 |
| SOCY100 | Introduction to Sociology | 3 |
| or SOCY105 | Understanding Contemporary Social Problems - Frameworks for Critical Thinking and Strategies for Solutions | |
| EDHD411 | Child Growth and Development | 3 |
| HIST200 | Interpreting American History: Beginnings to 1877 | 3 |
| HESP202 | Introduction to Hearing and Speech Sciences | 3 |

[1] Students must complete two lab sciences from two different categories to be admitted to the program. Students who pursue Track 2 will complete one lab science from each of the following categories for a total of 3 lab sciences: (a) biological lab science, (b) environmental lab science, and (c) physical lab science.

2. Admission is competitive beyond the minimum 2.75 grade point average required for consideration.

3. Submission of an application together with a statement of intent specifying the applicant's professional goals.

4. Submission of two letters of recommendation and a Foundational Competency Review.

5. Completion of College of Education Foundational Competencies Acknowledgment Form.

6. Completion of an interview with a special education faculty member.

Admittance will be based on a variety of criteria, including completion of the required courses, the grade point average, the applicant's experience with persons with disabilities, and the appropriateness and clarity of the

professional goal statement. For more information, see the admission section of the College of Education entry.

# Placement in Courses

The Special Education program includes both pre-professional and professional education course work. Before teacher candidates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program.

# Program Learning Outcomes

1. Special Education teacher candidates have in-depth knowledge of the subject matter they teach as described in professional (CEC, ACEI), state (MSDE), and University standards.
2. Special Education teacher candidates practice evidence-based instruction and decision-making through the use of assessment as well as the critical interpretation of research and inquiry to improve educational practice. They accurately assess, plan, and analyze student learning, make appropriate modifications to instruction, monitor student learning, and have a positive effect on learning for all students.
3. Special Education teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (CEC, ACEI), state (MSDE), and University standards.
4. Special Education teacher candidates competently integrate technology and universal design in learning in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in the Maryland Teacher Technology Standards.

# REQUIREMENTS

**Notice of Addendum:** requirements for this program were updated effective Spring 2025 and have been published on ADDENDA TO THIS CATALOG (p. 1116).

Undergraduates who are interested in majoring in Special Education must consult a program advisor as early as possible after matriculation at the university since the curriculum requires an extensive and sequenced program of studies. Individuals accepted as Special Education majors take a two-semester sequence of foundational courses and practicum experiences during the third year (Semesters V and VI). Teacher candidates are provided opportunities to observe and participate in different elementary or middle special education classroom settings during their first semester in the program (Semester V) so they may declare a track of focus, Track 1: Severe Disabilities or Track 2: Inclusive Education, before the start of their second semester (Semester VI). These courses provide the teacher candidate with a solid foundation in theory and practice related to the education of children of their chosen track.

Teacher candidates work directly with children from their chosen track during each semester, leading up to student teaching during the last semester.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 365) | | |
| Complete the following with a B- or better: | | |
| EDSP210 | Foundations of Special Education: Inclusive Practices | 3 |
| or EDSP211 | Foundations of Special Education: Inclusive Practices | |
| Complete the following with a C- or better: | | |
| PSYC100 | Introduction to Psychology (HS or NS) [1] | 3 |
| SOCY100 | Introduction to Sociology [1] | 3 |
| or SOCY105 | Understanding Contemporary Social Problems - Frameworks for Critical Thinking and Strategies for Solutions | |
| Select one of the following: | | 3 |
| HIST200 | Interpreting American History: Beginnings to 1877 (HS or HU) [1] | |
| HIST201 | Interpreting American History: From 1865 to the Present (HS or HU and DVUP) | |
| HESP202 | Introduction to Hearing and Speech Sciences | 3 |
| Select a Physical Science with Lab [3] | | 4 |
| Select a Biological Science with a Lab [3] | | 4 |
| Select a Environmental Science with a Lab [3] | | 4 |
| STAT100 | Elementary Statistics and Probability (AR) [1,2] | 3 |
| EDHD411 | Child Growth and Development (HS) | 3 |
| or PSYC355 | Developmental Psychology | |
| MATH212 | Elements of Numbers and Operations | 3 |
| MATH213 | Elements of Geometry and Measurement | 3 |
| ENGL Literature (HU) [1] | | 3 |
| Select one of the following: | | 3 |
| TLPL360 | Foundations of Education (HS) [1] | |
| TLPL250 | Historical and Philosophical Perspectives on Education (HU) [1] | |
| **Professional Requirements Track 1** | | |
| PROFESSIONAL SEMESTER I (Fall Only): | | |
| EDSP411 | Foundations of Technology Integration for Curriculum Access | 3 |
| EDSP413 | Principles and Practices in Positive Behavior Interventions and Classroom Supports | 3 |
| EDSP400 | Instruction of Students with Severe Disabilities I | 3 |
| EDSP451 | Curriculum and Instruction: Elementary/Middle Special Education | 3 |
| EDSP443 | Language and Literacy Acquisition in Children with Disabilities | 3 |
| EDSP425 | Pre-Internship I | 1 |
| PROFESSIONAL SEMESTER II (Spring Only): | | |
| EDSP403 | Supporting Access for Students with Multiple Disabilities Across Settings | 3 |
| EDSP415 | Assessment Techniques and Practices in Special Education | 3 |
| EDSP416 | Reading and Writing Instruction in Special Education I ((HU)) | 3 |
| EDSP410 | Instruction of Students with Severe Disabilities II | 3 |
| EDSP485 | Assessment and Instruction in Mathematics in Special Education | 3 |
| EDSP426 | Pre-Internship II (Pre-Internship II) | 1 |
| PROFESSIONAL SEMESTER III (Fall Only): | | |
| EDSP484 | Reading and Writing Instruction in Special Education II | 3 |

| | | |
|---|---|---|
| EDSP487 | Collaborative Partnerships in Special Education | 3 |
| EDSP404 | Methods of Teaching Autistic Students | 3 |
| EDSP452 | Internship I: Elementary/Middle Special Education | 2-4 |
| PROFESSIONAL SEMESTER IV (Spring Only): | | |
| EDSP490 | Teacher Candidate Research Seminar in Special Education | 3 |
| EDSP495 | Internship II: Elementary/Middle Special Education | 12 |
| **Professional Requirements Track 2** | | |
| PROFESSIONAL SEMESTER I (Fall Only): | | |
| EDSP411 | Foundations of Technology Integration for Curriculum Access | 3 |
| EDSP413 | Principles and Practices in Positive Behavior Interventions and Classroom Supports | 3 |
| EDSP400 | Instruction of Students with Severe Disabilities I | 3 |
| EDSP451 | Curriculum and Instruction: Elementary/Middle Special Education | 3 |
| EDSP443 | Language and Literacy Acquisition in Children with Disabilities | 3 |
| EDSP425 | Pre-Internship I (Pre-Internship I) | 1 |
| PROFESSIONAL SEMESTER II (Spring Only): | | |
| TLPL362 | Curriculum and Instruction in Elementary Education: Social Studies | 3 |
| EDSP415 | Assessment Techniques and Practices in Special Education | 3 |
| EDSP416 | Reading and Writing Instruction in Special Education I | 3 |
| EDSP485 | Assessment and Instruction in Mathematics in Special Education | 3 |
| EDSP426 | Pre-Internship II (Pre-Internship II) | 1 |
| PROFESSIONAL SEMESTER III (Fall Only): | | |
| EDSP484 | Reading and Writing Instruction in Special Education II | 3 |
| EDSP487 | Collaborative Partnerships in Special Education | 3 |
| EDSP404 | Methods of Teaching Autistic Students | 3 |
| TLPL321 | Curriculum and Instruction in Elementary Education: Science | 3 |
| EDSP452 | Internship I: Elementary/Middle Special Education | 2-4 |
| PROFESSIONAL SEMESTER IV (Spring Only): | | |
| EDSP490 | Teacher Candidate Research Seminar in Special Education | 3 |
| EDSP495 | Internship II: Elementary/Middle Special Education | 6-12 |
| **Total Credits** | | **155-165** |

[1] May double count for GenEd and major requirement
[2] MATH111 will NOT satisfy this requirement
[3] Students must complete one lab science from each of the following categories for a total of 3 lab sciences: (a) biological lab science, (b) environmental lab science, and (c) physical lab science.

## Other Requirements for the Major

A minimum overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies and attain qualifying scores for the State of Maryland on a Test of Basic Skills assessment . A Test of Basic Skills assessment is required for admission, and Praxis II Special Education is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a partner school or a professional development school (PDS).

## GRADUATION PLANS

Click here (https://education.umd.edu/student-resources/student-services/coe-undergraduate-studies-student-services-office/major-four/) for roadmaps for graduation plans in the College of Education.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Leadership Studies Certificate

**Counseling, Higher Education and Special Education (CHSE)**
leadershipstudies@umd.edu
http://education.umd.edu/leadershipstudies/

**Program Director:** Courtney Holder

The Leadership Studies Program promotes college student leadership development by educating undergraduate students for and about leadership in a complex world. Both the minor and certificate options prepare students to effectively engage in leadership in both formal and informal ways within campus, local, national, and global contexts.

Leadership Studies students explore leadership theory and practice from a variety of social, historic, and disciplinary lenses and are challenged to think about leadership critically and broadly, beyond dominant narratives of position and authority. Students are also encouraged to identify a working philosophy of leadership that can advance their thinking around ethics, civic engagement, and the importance of working within diverse and multicultural environments. These areas are critical aspects of leadership that require faculty and students to build and critically evaluate existing theoretical, research-based, and practical knowledge of leadership.

Beyond the classroom, leadership studies students can use their knowledge, skills, and competencies gained from this academic program to enhance their sense of self and engagement with others, as well as their practice within their major discipline, future career, and ongoing engagement with communities and organizations.

The Leadership Studies Program is made possible through a partnership between the Department of Counseling, Higher Education & Special Education (https://education.umd.edu/academics/departments/chse/) and the Leadership & Community Service-Learning (https://thestamp.umd.edu/leadership_community_service-learning/) office in the Adele H. Stamp Student Union - Center for Campus Life.

## Application and Eligibility

Applications are available online and are reviewed on a rolling basis each fall and spring semester. Students are asked to respond to three short-essay questions and share their plan for completing the program requirements. Students will be notified of their application status via email approximately 2-3 weeks after submitting their application.

Students may apply to the leadership studies program if they meet the following requirements:

- Student is currently enrolled in HESI217 or has completed HESI217 with a C- or better.
- Student is in good academic standing.
- Student has at least one full academic year left before graduating from UMD.
- Student has completed no more than 9 credits of leadership studies coursework prior to acceptance into the program.

## REQUIREMENTS

The Leadership Studies Certificate consists of **21 credits**. At least **12 credits** must be at the 300 level or above. Additionally, no more than **6 credits** from a student's minor or certificate program can also be applied to a student's major, and no more than **6 credits** may be taken at an institution other than the University of Maryland, College Park. No course with an earned grade below C- may count towards the minor or certificate.

| Course | Title | Credits |
|---|---|---|
| **Requirements for the Certificate** | | |
| HESI217 | | 3 |
| HESI315 | | 3 |
| HESI320 | | 2 |
| HESI321 | | 1 |
| HESI417 | | 3 |
| HESI Leadership Elective (from pre-approved list) | | 3 |
| Select two elective courses, from our pre-approved elective list | | 6 |
| **Total Credits** | | **21** |

# Leadership Studies Minor

**Counseling, Higher Education and Special Education (CHSE)**
leadershipstudies@umd.edu
http://education.umd.edu/leadershipstudies/

**Program Director:** Courtney Holder

The Leadership Studies Program promotes college student leadership development by educating undergraduate students for and about leadership in a complex world. Both the minor and certificate options prepare students to effectively engage in leadership in both formal and informal ways within campus, local, national, and global contexts.

Leadership Studies students explore leadership theory and practice from a variety of social, historic, and disciplinary lenses and are challenged to think about leadership critically and broadly, beyond dominant narratives of position and authority. Students are also encouraged to identify a working philosophy of leadership that can advance their thinking around ethics, civic engagement, and the importance of working within diverse and multicultural environments. These areas are critical aspects of leadership that require faculty and students to build and critically evaluate existing theoretical, research-based, and practical knowledge of leadership.

Beyond the classroom, leadership studies students can use their knowledge, skills, and competencies gained from this academic program to enhance their sense of self and engagement with others, as well as their practice within their major discipline, future career, and ongoing engagement with communities and organizations.

The Leadership Studies Program is made possible through a partnership between the Department of Counseling, Higher Education & Special Education (https://education.umd.edu/academics/departments/chse/) and the Leadership & Community Service-Learning (https://thestamp.umd.edu/leadership_community_service-learning/) office in the Adele H. Stamp Student Union - Center for Campus Life.

## Eligibility

Applications for the leadership studies program (minor and certificate) are made available online during select times each semester. Students may apply to the leadership studies program if they meet the following requirements:

1. Student is currently enrolled in HESI217 or has completed HESI217 with a C- or better.
2. Student is in good academic standing.
3. Student has at least one full academic year left before graduating from UMD.
4. Student has completed no more than 9 credits of leadership studies coursework prior to acceptance into the program.

## Application Procedures and Forms

Applications are available online and are reviewed on a rolling basis each fall and spring semester. Students are asked to respond to three short-essay questions and share their plan for completing the program requirements. Students will be notified of their application status via email approximately 2-3 weeks after submitting their application.

After the closing application date, applications will be reviewed and applicants will be notified within two to three weeks by email.

## REQUIREMENTS

The Leadership Studies Minor consists of **15 credits**. At least **9 credits** must be at the 300 level or above. Additionally, no more than **6 credits** from a student's minor or certificate program can also be applied to a student's major, and no more than **6 credits** may be taken at an institution other than the University of Maryland, College Park. No course with an earned grade below C- may count towards the minor or certificate.

| Course | Title | Credits |
|---|---|---|
| **Requirements for the Minor** | | |
| HESI217 | | 3 |
| HESI315 | | 3 |
| HESI417 | | 3 |
| HESI Leadership Elective (from pre-approved list) | | 3 |
| Select one elective course, from our pre-approved elective list | | 3 |
| **Total Credits** | | **15** |

Contact Leadership Studies at leadershipstudies@umd.edu with questions and interests in the Minor.

# Human Development and Quantitative Methodology

**College of Education**
3304 Benjamin Building

Phone: 301-405-2827
hdqm@umd.edu
http://education.umd.edu/HDQM/

The core mission of the Department of Human Development and Quantitative Methodology (HDQM) is to advance knowledge and practice through teaching and research related to human development and learning, and to quantitative methodologies critical to measurement, statistics, and evaluation in the educational, behavioral, and social sciences.

Our programs offer exciting courses on topics such as how children learn, prosocial behavior and moral development, socio-cultural contexts of development, educational neuroscience, and sophisticated approaches to data analysis.

# PROGRAMS

## Major

- Early Childhood/Early Childhood Special Education Major (p. 375)
- Human Development Major (p. 377)

## Minor

- Human Development Minor (p. 379)

## For Advanced Undergraduates

Measurement, Statistics and Evaluation in the College of Education offers a 5th Year M.A. program for undergraduates interested in quantitative methods. The purpose of this program is to allow highly motivated undergraduates the opportunity to develop their skills in quantitative methods. Students complete a B.A. (or B.S.) in their chosen major area along with an M.A. in Measurement, Statistics and Evaluation in just five years. Courses offered by this unit may be found under the following acronym: EDMS.

# ADVISING

Advising is mandatory for all undergraduate students desiring acceptance into the Early Childhood/Early Childhood Special Education Teacher Education Program. Advising is also mandatory for undergraduate students pursuing the Human Development major. For more information or to schedule an advising appointment, contact the Office of Student Services at 301-405-2364 or email ed-advising@umd.edu.

# OPPORTUNITIES

## Undergraduate Research Experiences

There are a variety of opportunities for undergraduate students to participate in research in Human Development. Faculty's research focuses on a wide number of topics pertaining to human development and learning.

## Fieldwork Opportunities

An integral component of the Early Childhood/Early Childhood Special Education program at the University of Maryland is a series of field placements (N=5) of increasing complexity/responsibility that serve to complement university coursework. Field placements contribute to the programmatic mission of preparing knowledgeable, skilled and reflective practitioners who base their practice on theory, research, and pedagogy appropriate for the developing child. Interns observe, interact and teach children ages 0 (6 weeks per child care licensing) to 8 in authentic settings.

The first of these field placements typically occurs in the sophomore year (and occasionally during spring of the freshman year) and is associated with a course entitled EDHD220, Exploring Teaching in Early Childhood/Early Childhood Special Education. Early Childhood/Early Childhood Special Education candidates experience a semester-long practicum (one half day per week) with both preschool and school age children.

During fall of the junior year, the practicum is linked to EDSP420 Human Development and Learning in School Settings: Infants-Toddlers. Candidates complete selected observations of infants in child care centers, family childcare centers and community-based institutions that care for infants. These observations are followed by an eight-week placement in a child care setting in which candidates observe and interact with toddlers. The culminating early field placement begins in the spring semester of the junior year. Candidates experience a semester-long placement with three, four or five year olds in a Head Start or pre-kindergarten classroom. The candidates spend six hours per week in the classroom plus a full week of half days.

## Internships

The capstone experience for the Early Childhood/Early Childhood Special Education program is a yearlong internship in a public Professional Development School (PDS), which is a Title I school with large populations of students of color, English Language Learners and those who receive free and reduced meals. The internship is divided into two phases, approximately 110 days over the course of two consecutive semesters. For more details, contact the Early Childhood/Early Childhood Special Education program advisor at 301-405-2364.

## Honors Program

The Human Development (HD) Honors program provides an opportunity for undergraduate HD majors to become part of a Community of Scholars in human development through advanced coursework and research in areas related to developmental psychology and educational psychology. Honors students work closely with faculty mentors to gain greater depth and knowledge about research and scholarship in human development that emphasizes the scientific process, communication skills, and diversity, equity, and inclusion.

Students who have an overall cumulative grade point average of at least 3.5, who have taken at least nine credits in human development that includes EDHD 306, and who have sponsorship from a human development faculty advisor may apply. All human development majors, including double majors in HD are encouraged to apply. Admission to the program is based on whether the applicant has met the eligibility criteria and has demonstrated interest to successfully complete the coursework and thesis requirements for graduation with Honors. Further information on the Human Development Honors program is available at: http://education.umd.edu/human-development-honors-program/.

## Scholarships and Financial Assistance

The department offers the Marie Davidson scholarship to two undergraduate EC/ECSE majors each year. The department of Counseling, Higher Education and Special Education offers the Abbey scholarship to one undergraduate in EC/ECSE each year. In addition, the College of

Education offers a number of other scholarships. Please visit http://education.umd.edu/studentinfo/scholarships.html for more information.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Awards and Recognition

Early Childhood/Early Childhood Special Education majors are eligible for the Ordwein Scholarship, the Abbey Scholarship and the Marie Davidson Award. Information is available in the Office of Student Services, Room 1204 Benjamin.

## Academic Programs and Departmental Facilities

The individual laboratories led by faculty in the Human Development Program provide research experience for undergraduate and graduate students on topics ranging from moral reasoning and social relationships to the neuroscience of reading and effective strategies for helping children learn mathematics.

The Center for Young Children provides developmentally appropriate education and care for children aged three through kindergarten. The Center provides research opportunities that involve observing children in their classrooms as part of course requirements in various EDHD undergraduate courses.

The Center for Early Childhood Education and Intervention (CECEI) conducts high-quality research on early childhood education and early intervention programs in order to inform state and federal policy, translate research into scalable education programs and best practices, build capacity in schools and communities, and promote family engagement in their children's education. CECEI offers varied research opportunities for undergraduates. To apply, please submit a cover letter, unofficial transcript, resume, and writing sample to cecei@umd.edu.

# Early Childhood/Early Childhood Special Education Major

**Program Director:** Christy Terrell Corbin, Ph.D.

The Human Development program offers a major in Early Childhood/Early Childhood Special Education (EC/ECSE) (in collaboration with the Department of Counseling, Higher Education and Special Education). Faculty in the Human Development program also teach courses designed for pre-service and in-service teachers in the College of Education, as well as students from other departments across campus who are seeking an education minor or who desire to work with children and adolescents in school settings. These courses focus on child and adolescent development, language acquisition, cognition, motivation, and reading. In addition, the Human Development program offers undergraduate courses that help students meet other degree requirements. Courses offered by the Human Development program may be found under the following acronym: EDHD.

Faculty in Human Development provide undergraduates with research experiences in their individual laboratories.

The Center for Young Children provides developmentally appropriate education and care for children aged three through kindergarten. The Center provides research opportunities that involve observing children in their classrooms as part of course requirements in various EDHD undergraduate courses.

Graduates of the Early Childhood/Early Childhood Special Education (EC/ECSE) program receive a Bachelor of Science degree and meet the Maryland certification requirements for teaching early childhood special education (birth through grade three) and early childhood general education (preschool through grade three).

## Admission to the Major

Application to the Early Childhood/Early Childhood Special Education Professional Teacher Education Program must be made by May 1, prior to beginning professional courses. Admission procedures and criteria are explained on the College of Education, Overview tab (p. 364). The Early Childhood/Early Childhood Special Education program adheres to the college's professional education admissions requirements. In addition to the College of Education selective admissions criteria, EC/ECSE majors must meet the following gateway requirements:

1. Completion of a four-credit laboratory physical science, a four-credit laboratory biological science, Elements of Numbers and Operations (MATH212), and Elements of Geometry and Measurement (MATH213) with a minimum grade of "C-" in each class and a 2.7 cumulative GPA across all four courses.
2. Completion of Exploring Teaching in Early Childhood General and Special Education (EDHD220 or approved equivalent) with a grade of "B-" or better and EDHD210.

For additional details regarding the professional education admission requirements, see the Overview (p. 364) on the College of Education page. Detailed information regarding the gateway requirements for the EC/ECSE program is available in the Office of Student Services, Room 1204 Benjamin.

## Placement in Courses

The EC/ECSE Program has designated pre-professional courses and a specified sequence of professional courses. Before teacher candidates may enroll in courses identified as part of the professional sequence, they must first gain admission to the Early Childhood/Early Childhood Special Education program.

## Program Objectives

The mission of the Early Childhood & Early Childhood Special Education program is to prepare knowledgeable and skilled teachers who utilize theory, research and pedagogy, to respectfully and responsively teach and affect the lives of children, with and without disabilities, who come from culturally diverse and low socioeconomic backgrounds.

## Program Learning Outcomes

Program learning outcomes for the Early Childhood/Early Childhood Special Education (EC/ECSE) major are driven by the standards of the Council for Exceptional Children (CEC), National Association for the Education of Young Children (NAEYC), Association for Advising Quality in Educator Preparation (AAQEP), as well as the Initial certification requirements of the Maryland State Department of Education and the UMD College of Education Conceptual Framework.

1. EC/ECSE teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (National Association for the Education of Young Children – NAEYC; Council for Exceptional Children - CEC), state (MSDE), and institutional standards. They demonstrate their knowledge through inquiry, critical analysis, and synthesis of the subject.
2. EC/ECSE teacher candidates can effectively plan classroom-based instruction or activities for their roles as early childhood educators. Candidates' knowledge, skills, and dispositions are applied effectively in practice.
3. EC/ECSE teacher candidates accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.
4. EC/ECSE teacher candidates are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (NAEYC and CEC), state (MSDE), and institutional standards.
5. EC/ECSE teacher candidates demonstrate fluency in each of the seven Maryland Teacher Technology Standards (http://www.marylandpublicschools.org/programs/Pages/ITSLM/slm/teacher_standards.aspx/).

# REQUIREMENTS

## Pre-Professional Requirements

The following courses are required in the program of studies for Early Childhood and may also satisfy the University's general education requirements. See departmental worksheets and advisors for additional information.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 365) | | |
| PSYC100 | Introduction to Psychology | 3 |
| SOCIAL SCI | ANTH, ECON, GEOG, GVPT, HIST, SOCY | 3 |
| HIST200 | Interpreting American History: Beginnings to 1877 | 3 |
| BIO SCI | Biological Science with Lab | 4 |
| PHYS SCI | ASTR, CHEM, GEOL, PHYS with Lab | 4 |
| TLPL250 | Historical and Philosophical Perspectives on Education | 3 |
| or TLPL360 | Foundations of Education | |
| **Other Pre-Professional Requirements** | | |
| MATH212 | Elements of Numbers and Operations | 3 |
| MATH213 | Elements of Geometry and Measurement | 3 |
| CREATIVE ART: One of the following: | | 2-3 |
| THET120 | Introduction to Acting | |
| MUED155 | Fundamentals for the Classroom Teacher | |
| TLPL202 | Good Stories: Teaching Narratives for Peace and Justice | |
| TLPL331 | | |
| ARTT100 | Two-Dimensional Design Fundamentals | |
| or ARTT110 | Elements of Drawing I | |
| ARTH221 | | |
| EDHD210 | Foundations of Early Childhood Education | 3 |
| EDHD220 | Exploring Early Childhood General and Special Education | 3 |
| **Total Credits** | | **34-35** |

## Professional Courses

The Early Childhood (EC)/Early Childhood Special Education (ECSE) Professional Block I starts only in the Fall semester and is a prerequisite to Professional Block II which is offered only in the Spring semester. Following Professional Block II is Professional Block III, which is taken in the Fall semester of the yearlong teaching internship. A cumulative grade point average of 2.75 must be maintained after admission to the Early Childhood/Early Childhood Special Education program. All pre-professional requirements and professional courses must be completed with a minimum grade of "C-" and must be completed prior to the yearlong internship. Teacher candidates must obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards. See advisor for program planning. Additional information regarding the requirements for the yearlong internship is included in the Requirements Tab on the College of Education page.

| Course | Title | Credits |
|---|---|---|
| **Fall Junior Year Courses** | | |
| EDHD434 | Child Development, Birth to Three Years | 3 |
| or EDSP420 | Child Development, Birth to Three Years | |
| EDHD425 | Language Development and Reading Acquisition | 3 |
| EDHD314 | Reading in the Early Childhood Classroom | 3 |
| **Spring Junior Year Courses** | | |
| EDHD431 | Child Development and Learning, Three to Eight Years | 3 |
| EDSP423 | Assessment in Early Childhood Special Education | 3 |
| EDSP315 | Inclusive Instruction: Reading Methods II | 3 |
| Complete One of the Two Tracks | | 6 |
| TRACK I (Birth - 5yrs.) | | |
| EDSP430 | Early Intervention: Early Childhood Special Education | |
| EDSP433 | Families and Culture in Early Intervention (Birth-5) | |
| OR | | |
| TRACK II (PreK - 3rd) | | |
| EDHD415 | Promoting the Social-Emotional Competence of Young Children in Inclusive Classrooms | |
| EDHD424 | Culture, School & Community: Contexts for Learning (PreK-3rd) | |
| **Fall Senior Year Courses** | | |
| EDSP321 | The Young Child As Scientist | 3 |
| EDHD322 | The Young Child as Mathematician | 3 |
| EDHD323 | Children Study their World | 3 |
| EDSP417 | Reading Diagnosis and Assessment | 3 |
| EDHD441 | Data Driven Decision Making in EC/ECSE | 1 |
| EDHD442 | Interventions for Children with Behavioral Challenges | 1 |
| EDHD443 | Interventions for Children with Social and Communication Challenges | 1 |
| EDHD444 | Action Research in EC/ECSE | 1 |
| **Spring Senior Year Courses** | | |
| EDHD437 | EC/ECSE Teachers as Researchers and Reflective Practitioners | 3 |

| | | |
|---|---|---|
| EDHD432 | Internship in EC/ECSE | 12 |
| **Total Credits** | | **55** |

## Other Requirements for the Major

An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and to attain qualifying scores for the State of Maryland on a test of basic skills and Praxis II assessments. The test of basic skills is required for admission, and Praxis II is required for admission to the final, culminating semester of the yearlong internship and for graduation. Students must complete five-semesters of field placement, to include the yearlong internship which takes place in a public Professional Development School (PDS)/collaborating partner school.

## GRADUATION PLANS

Click here (https://education.umd.edu/student-resources/student-services/coe-undergraduate-studies-student-services-office/major-four/) for roadmaps for graduation plans in the College of Education.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Human Development Major

**Program Director:** Jennie Lee-Kim, Ph.D.

The field of Human Development is concerned with mechanisms of growth and change across the life course. Thus, Human Development Majors will explore the biological, social, emotional, and cognitive processes of development from conception to old age in diverse social and cultural contexts. Students in the Human Development Major will participate in an integrated set of educational experiences to acquire a comprehensive body of interdisciplinary scholarly knowledge in human development, learning, and research methodology. Introductory and advanced course work, as well as laboratory research apprenticeships or field experiences are essential components of the proposed curriculum.

## Program Learning Outcomes

1. Develop a comprehensive knowledge base in human development
2. Understand central questions in the field of human development and the major theoretical approaches to them
3. Describe the sequence of typical development and the underlying processes in the domains of cognitive, linguistic, social, and emotional development
4. Recognize the importance of biology and environment, including context and culture on children's development and learning
5. Understand how human development influences educational practice, and how different educational approaches affect learning and development
6. Appreciate how theory and scientific research are addressed in applied in issues relating to children, family, education, and public policy
7. Develop core critical thinking and scientific literacy skills
8. Formulate answerable questions about important issues in learning and development, as well as generate and evaluate methods for answering those questions
9. Critically evaluate and reason about empirical evidence relevant to important issues in learning and development, and make informed arguments and decisions on the basis of empirical evidence
10. Critically evaluate current policies and clinical/educational approaches that address important societal issues on the basis of evidence
11. Apply these critical thinking and scientific literacy skills across a wide range and intersection of disciplines in development and education, in both research and applied settings
12. Develop understanding of and value ethical and social responsibility
13. Understand and apply ethical standards in research and practice in human development
14. Show awareness of the diversity of race, cultures, and contexts in which humans develop and grow
15. Apply evidence from human development research to improve policy and practice that fosters ethical and social responsibility and promotes social justice
16. Develop key skills for communication and writing
17. Clearly summarize, assess, and cite empirical evidence and theoretical perspectives, including describing methodology, results, limitations, and implications for a broader audience
18. Formulate clear written arguments and substantively defend them with empirical evidence
19. Present clear evidence-based arguments orally in ways that facilitate communication across a range of academic and non-academic audiences
20. Develop key professional skills
21. Apply both specific knowledge in human development as well as general critical thinking, scientific literacy, and communication skills to career goals
22. Organize, execute, and manage complex, multi-step research and writing projects
23. Develop meaningful, purposeful, and realistic career goals for professional life post-graduation

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Gateway Courses** | | |
| EDHD200 | Paradigms and Perspectives in Human Development | 3 |
| EDHD201 | Learning How to Learn | 3 |
| EDHD320 | Human Development Through the Life Span | 3 |
| **Statistics and Methods Courses** | | |
| EDHD306 | Research Methods in Human Development | 3 |
| EDMS451 | Introduction to Educational Statistics | 3 |
| **Core Courses** | | **9** |
| Select three of the following five courses: | | |
| EDHD411 | Child Growth and Development | |
| EDHD412 | Infant Development | |
| EDHD413 | Adolescent Development | |
| EDHD440 | Adult Development | |
| EDHD460 | Educational Psychology | |

| | | |
|---|---|---|
| **Elective Courses** [1,2] | | **12** |
| Select four of the following elective courses: | | |
| EDHD221 | Aggression and Violence in Everyday Life: Can Violence Be Prevented? | |
| EDHD230 | Human Development and Societal Institutions | |
| EDHD231 | Inside 21st Century Creativity: How Creative Ideas, Concepts, and Products are Generated | |
| EDHD241 | Are Two Languages Better than One: The Science and Controversy of Bilingualism | |
| EDHD310 | Your Brain on Education: The Neuroscience of Learning and Development | |
| EDHD400 | Introduction to Gerontology | |
| EDHD405 | Information Weaponization: Thinking Critically in a Changing World | |
| EDHD402 | Social Development | |
| EDHD414 | Development of the Scientific Mind Across the Lifespan | |
| EDHD420 | Cognitive Development and Learning | |
| EDHD421 | Peer Relations | |
| EDHD425 | Language Development and Reading Acquisition | |
| EDHD426 | Cognitive and Motivational Literacy Content | |
| EDHD430 | | |
| **Pro-Seminar and Internship/Field Experience** [3] | | |
| EDHD390 | Career Paths and Internship Preparation in Human Development | 1 |
| To be completed in the final year: | | |
| EDHD489 | Field Experiences in Human Development [4] | 6 |
| **Total Credits** | | **43** |

1. Any core course listed above for which core course credit was not given may serve as an elective. This set of courses should be chosen to align with the student's individual program goals and could include extradepartmental course offerings.
2. Students may, at the invitation of individual faculty, substitute EDHD498, for three of the required 12 credit elective component. For situations in which students wish to pursue a double major, Family Science Majors may substitute FMSC302 for EDHD306, and Psychology Majors may substitute PSYC300 for EDHD306 and PSYC200 for EDMS451 in the Human Development major
3. Students may elect to substitute six credits of upper (400 level) electives in place of the internship experience, although internship experience is strongly recommended.
4. Students may complete EDHD489 in one semester or over two semesters. Students may also take EDHD489 for three credits and another 400-level elective for three credits in order to satisfy this requirement.

## Psychology Electives

| Course | Title | Credits |
|---|---|---|
| PSYC200 | Statistical Methods in Psychology | 3 |
| PSYC221 | Social Psychology | 3 |
| PSYC300 | Research Methods in Psychology Laboratory | 4 |
| PSYC330 | Child Psychopathology | 3 |
| PSYC332 | Psychology of Human Sexuality | 3 |
| PSYC334 | Psychology of Interpersonal Relationships | 3 |
| PSYC336 | Psychology of Women | 3 |
| PSYC341 | Introduction to Memory and Cognition | 3 |
| PSYC346 | Death, Dying and Grieving: What Future Healthcare Professionals Need to Know | 3 |
| PSYC353 | Adult Psychopathology | 3 |
| PSYC381 | Community Interventions: Domestic Violence I | 3 |
| PSYC391 | Community Interventions: Domestic Violence II - Service Learning | 3 |
| PSYC436 | Introduction to Clinical Psychology: From Science to Practice | 3 |

## Sociology Electives

| Course | Title | Credits |
|---|---|---|
| SOCY227 | Introduction to the Study of Deviance | 3 |
| SOCY230 | Sociological Social Psychology | 3 |
| SOCY241 | Inequality in American Society | 3 |
| SOCY325 | The Sociology of Gender | 3 |
| SOCY412 | Family Demography | 3 |
| SOCY424 | Sociology of Race Relations | 3 |
| SOCY442 | The Black Middle Class | 3 |
| SOCY467 | Sociology of Education | 3 |

## Family Science Electives

| Course | Title | Credits |
|---|---|---|
| FMSC290 | Family Economics | 3 |
| FMSC330 | Family Health: Health Happens in Families | 3 |
| FMSC332 | Children in Families | 3 |
| FMSC430 | Gender Issues in Families | 3 |
| FMSC431 | Family Crises, Emergencies and Interventions | 3 |
| FMSC460 | Violence in Families | 3 |

## Other Possible Electives

Electives approved by program advisor from the following departments to satisfy individual students' program goals:

- AASP – African American Studies
- AAST - Asian American Studies
- AMST – American Studies
- ANTH - Anthropology
- BMGT – Business and Management
- CCJS – Criminology and Criminal Justice
- ECON - Economics
- GVPT – Government and Politics
- HESP – Hearing and Speech Sciences
- HLTH - Health LING - Linguistics
- RELS – Religious Studies
- SLLC – School of Languages Literatures and Cultures
- SPHL – Public Health
- STAT – Statistics and Probability
- WMST – Women's Studies

## GRADUATION PLANS

Click here (https://education.umd.edu/student-resources/student-services/coe-undergraduate-studies-student-services-office/major-four/) for roadmaps for graduation plans in the College of Education.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Human Development Minor

3304 Benjamin Building
Phone: 301-405-2827
http://education.umd.edu/HDQM/

**Program Director:** Jennie Lee-Kim, Ph.D.

The Human Development Undergraduate Minor provides a rigorous foundation in Human Development for students who wish to support their major field of study with knowledge of human growth and development across multiple domains and developmental stages, as well as knowledge related to principles of teaching and learning and/or who desire active participation in human development research under the supervision of Human Development faculty in laboratory settings.

Students with a 2.0 minimum grade point average may seek enrollment in the program, during which they must complete 15-24 credits of coursework. Only courses in which the student has earned a grade of "C-" or higher will count toward the minor. Students must take EDHD200, EDHD306 and choose other courses from at least two of the other areas of human development study, including Lifespan, Cognitive and Social. Students who have taken FMSC332 will be required to choose a course other than EDHD411 from the list of courses available in Area 4: Lifespan. Students who apply to the Minor and who have taken FMSC302 or PSYC300 may substitute either course for EDHD306. At least nine credits must be at the 300 or 400 level.

Students interested in taking this minor should contact the Office of Student Services in the College of Education. Please email educminors@umd.edu or call 301-405-2364 for more information or to arrange an advising appointment. The Student Services office is located in Room 1204, Benjamin.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| EDHD306 | Research Methods in Human Development [1] | 3 |
| EDHD200 | Paradigms and Perspectives in Human Development | 3 |
| Select courses from at least two of the following areas: [2] | | 12-21 |
| Cognitive | | |
| Social | | |
| Research | | |
| Lifespan | | |
| **Total Credits** | | **18-27** |

[1] EDHD306 is a required course for the EDHD Minor; students may not substitute any other research course with the exception of Family Science majors who may take FMSC302 or Psychology majors and Neuroscience majors who may take PSYC300.

[2] Course selections might include three credits of EDHD228 (Research Experiences in Human Development), EDHD319 (Selected Special Topics in HD), EDHD386 (Experiential Learning), EDHD489 (Field Experiences in Education), or EDHD498 (Special Problems in Education). These courses involve directed study with a faculty advisor.

## Area 1: Cognitive

| Course | Title | Credits |
|---|---|---|
| EDHD201 | Learning How to Learn | 3 |
| EDHD231 | Inside 21st Century Creativity: How Creative Ideas, Concepts, and Products are Generated | 3 |
| EDHD241 | Are Two Languages Better than One: The Science and Controversy of Bilingualism | 3 |
| EDHD310 | Your Brain on Education: The Neuroscience of Learning and Development | 3 |
| EDHD405 | Information Weaponization: Thinking Critically in a Changing World | 3 |
| EDHD420 | Cognitive Development and Learning | 3 |
| EDHD425 | Language Development and Reading Acquisition | 3 |
| EDHD426 | Cognitive and Motivational Literacy Content | 3 |
| EDHD436 | Cognition and Motivation in Content Area Literacy for Middle-School Students | 3 |
| EDHD460 | Educational Psychology | 3 |

## Area 2: Social

| Course | Title | Credits |
|---|---|---|
| EDHD221 | Aggression and Violence in Everyday Life: Can Violence Be Prevented? | 3 |
| EDHD402 | Social Development | 3 |
| EDHD421 | Peer Relations | 3 |

## Area 3: Research

| Course | Title | Credits |
|---|---|---|
| EDMS451 | Introduction to Educational Statistics | 3 |

## Area 4: Lifespan

| Course | Title | Credits |
|---|---|---|
| EDHD230 | Human Development and Societal Institutions | 3 |
| EDHD320 | Human Development Through the Life Span | 3 |
| EDHD400 | Introduction to Gerontology | 3 |
| EDHD411 | Child Growth and Development | 3 |
| EDHD412 | Infant Development | 3 |
| EDHD413 | Adolescent Development | 3 |
| EDHD414 | Development of the Scientific Mind Across the Lifespan | 3 |
| EDHD440 | Adult Development | 3 |

# Teaching and Learning, Policy and Leadership

2311 Benjamin Building
Phone: 301-405-3324

http://education.umd.edu/academics/departments/tlpl/

**The Department of Teaching and Learning, Policy and Leadership** is one of three newly formed departments within the College of Education. It is a union of former units Curriculum and Instruction (EDCI), Education Policy Studies (EDPS) and Organizational Leadership and Policy Studies (OLPS). Interrelated program areas currently include: Art Integration, Curriculum Theory and Development, Education Policy, Elementary Education, English Education, Literacy Education, Mathematics Education, Middle School Education, Minority and Urban Education, Organizational Leadership, Reading Education, Science Education, Second Language/ TESOL, Social Studies Education, Professional Development/Teacher Education, and Sociocultural Foundations of Education.

Most of the college's teacher preparation programs (including elementary, middle, and secondary education) are housed in TLPL. Additional departmental programs encourage thoughtful and responsive explorations of education policies, practices and related social issues. Graduate students are prepared to create and critique alternative courses of action to enhance the quality of education for all persons and to redress the social conditions that restrict collective democratic aspirations.

The department offers undergraduate and graduate study leading to the Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Master of Arts (M.A.) (thesis and non-thesis options), Master of Education (M.Ed.), Doctor of Education (Ed.D.) and Doctor of Philosophy (Ph.D.).

## Foreign-Language Requirement, Bachelor of Arts Degree

Beginning Fall 2011 high school language will no longer place undergraduates in foreign language classes nor exempt individuals from taking the foreign language placement exam. All teacher candidates planning to study a foreign language will be required to take a foreign language placement test. This test is used to determine the appropriate placement prior to course registration. For more information, contact the Office of Student Affairs in the College of Arts and Humanities at arhuadvising@umd.edu or 301-405-2108.

# PROGRAMS

## Majors

- Elementary Education Major (p. 380)
- Middle School Education Major (p. 383)
- Secondary Education Major - Art (p. 384)
- Secondary Education Major - English (p. 386)
- Secondary Education Major - Mathematics (p. 388)
- Secondary Education Major - Science (p. 389)
- Secondary Education Major - Social Studies (p. 391)
- Secondary Education Major - World Language (p. 394)

## Minors

- Secondary Education Minor (p. 396)
- Teaching English for Speakers of Other Languages (TESOL) Education Minor (p. 397)

## Certificate

- Secondary Education Certificate (p. 384)

# ADVISING

Advising is mandatory for all elementary, middle school math and science and secondary education majors. For more information or to schedule an advising appointment, contact the Office of Student Services (301-405-2364) or email questions/inquiries to ed-advising@umd.edu.

# OPPORTUNITIES

## Internships

The yearlong internship, which is the culminating experience in the teacher preparation program, takes place in a public PDS school setting.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

The College of Education also offers a number of scholarships. For more information, see http://education.umd.edu/admissions/financial-aid-scholarships/.

## Academic Programs and Departmental Facilities

In addition to the double major program, the Department of Teaching and Learning, Policy and Leadership offers a Five-Year Integrated Master's with Certification Program (IMCP). This program is intended for talented undergraduates with a minimum GPA of 3.0 who seek to combine undergraduate studies in the content area and professional education as a foundation for a focused professional year at the graduate level leading to secondary-level certification (grades 7-12) in the subject field and the Master of Education degree. As undergraduates, teacher candidates are double majors in both secondary education and their content area. While double majors, undergraduates complete a minimum of 6 credits in professional education studies related to teacher certification requirements. In their junior or senior year they apply to the graduate program. If they are admitted to the graduate program they enroll in a full-year internship. These individuals will also complete graduate-level professional studies that make them eligible for initial teacher certification and the Master of Education degree. Information about this secondary education program option is available at http://education.umd.edu/academics/programs/teacher-certification/.

# Elementary Education Major

2311 Benjamin Building
Phone: 301-405-3324
http://education.umd.edu/academics/departments/tlpl/

**Program Co-Directors:** Tracy Dunheimer, Sr. Faculty Specialist; Karen Rehder, Sr. Faculty Specialist.

Teaching and Learning, Policy and Leadership offers an undergraduate curriculum in elementary education that leads to the Bachelor of Science. Courses offered in this program may be found under the following acronyms: EDCI, and TLPL. Graduates of the Elementary Education program are prepared to teach grades 1 through 6, and meet the requirements for certification in Maryland and additional states that are

affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education (MSDE).

## Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria are explained on the College of Education, Overview tab (p. 364).

## Placement in Courses

The Elementary Education program includes both pre-professional and professional education course work. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program. Admission procedures and criteria are explained in the College of Education entry. To be eligible to enroll in professional sequence courses during the fall semester, prospective majors must submit a completed application form by May 1st of the preceding spring semester. Teacher candidates will not be permitted to enroll in professional sequence courses — including the yearlong internship — prior to completion of the selective admissions requirements and full admission to the College of Education.

## Program Learning Outcomes

1. Elementary Education teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (Association for Childhood Education International, ACEI), state (MSDE), and institutional standards.
2. Elementary Education teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.
3. Elementary Education teacher candidates practice evidence-based decision-making through the use of assessment as well as the critical interpretation of research and inquiry in order to improve educational practice. They accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.
4. Elementary Education teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (ACEI), state (MSDE), and institutional standards.
5. Elementary Education teacher candidates competently integrate technology in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in each of the seven Maryland Teacher Technology Standards.

# REQUIREMENTS

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admission requirements and be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Model Code of Ethics for Educators and to attain qualifying scores for the State of Maryland on a test of basic skills and Praxis II assessments. The test of basic skills is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience is the yearlong internship, which takes place in a Professional Development School.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 365) | | |
| **The Gateway Requirements for Entrance into the Elementary Teacher Education Program** [1] | | |
| BIOSCI | Biological Science/Lab | 4 |
| PHY SCI | Physical Science/Lab | 4 |
| MATH212 | Elements of Numbers and Operations | 3 |
| MATH213 | Elements of Geometry and Measurement | 3 |
| TLPL251 | Community, Learners, and Classroom Climate [2] | 3 |
| **Courses which Double Count with the General Education Program** [3] | | |
| HIST200 | Interpreting American History: Beginnings to 1877 | 3 |
| BIO SCI | Biological Science/Lab Gateway Requirement | 4 |
| PHY SCI | Physical Science/Lab Gateway Requirement | 4 |
| SOC SCI | Social Science | 3 |
| Recommended social science course options: | | |
| GEOG100 | Introduction to Geography | |
| GVPT170 | American Government | |
| PSYC100 | Introduction to Psychology | |
| SOCY100 | Introduction to Sociology | |
| **Other Pre-Professional Requirements** | | |
| MATH214 | Elements of Probability and Statistics | 3 |
| TLPL340 | Introduction to Children's Literature and Critical Literacy | 3 |
| SOCY230 | Sociological Social Psychology | 3 |
| or PSYC221 | Social Psychology | |
| Select one of the following: | | 3 |
| TLPL250 | Historical and Philosophical Perspectives on Education | |
| TLPL360 | Foundations of Education | |
| EDHD411 | Child Growth and Development | 3 |
| **Area of Emphasis** | | |
| Select an Area of Emphasis chosen from the following: [4] | | 18 |
| World Language | | |
| Literature | | |
| Mathematics | | |
| Science | | |
| Social Studies | | |
| **Professional Education Courses** | | |
| EDSP401 | Teaching Students with Disabilities in Elementary Classrooms | 3 |
| TLPL332 | Arts Integration in Elementary Classrooms | 3 |
| TLPL341 | Assessing Language and Literacy Development in Elementary Classrooms | 3 |
| TLPL342 | Promoting Skilled and Motivated Readers in Diverse Elementary Classrooms (Part 1) | 3 |
| TLPL361 | Community, Learners, and Classroom Engagement | 3 |
| TLPL362 | Curriculum and Instruction in Elementary Education: Social Studies | 3 |

| | | |
|---|---|---|
| TLPL478 | Professional Seminar in Education (Community, Learners and Classroom Engagement) | 1 |
| TLPL479 | Field Experiences in Education (TLPL479B Field Experience in Elementary Education) | 1 |
| TLPL479 | Field Experiences in Education (TLPL479C Field Experience in Elementary Education) | 1 |
| **Year Long Internship** | | |
| TLPL300 | Digital Learning Tools and Communities | 1 |
| TLPL312 | Curriculum and Instruction in Elementary Education: Mathematics | 3 |
| TLPL321 | Curriculum and Instruction in Elementary Education: Science | 3 |
| TLPL343 | Promoting Skilled and Motivated Readers in Diverse Elementary Classrooms (Part 2) | 3 |
| TLPL344 | Culturally Responsive Language and Literacy Instruction in Diverse Elementary Classrooms | 3 |
| TLPL446 | Language Variation and Multilingualism in Elementary Classrooms | 3 |
| TLPL478 | Professional Seminar in Education (Community, Learners and Classroom Behavior) | 1 |
| TLPL478 | Professional Seminar in Education | 2 |
| TLPL489 | Internship in Education | 9 |
| TLPL489 | Internship in Education | 2 |
| **Total Credits** | | **115** |

[1] The 14-16 credits of math and science must be completed with a minimum grade of "C-" in each course and an overall GPA of 2.7.

[2] Minimum grade, "B-"

[3] Courses which may satisfy the university's general education requirements and which are required in the Elementary Education program of studies

[4] The Student Services Advising Office has detailed information regarding each area of emphasis. All pre-professional course work must be completed with a "C-" or better.

**Notes:**

- All pre-professional and professional courses must be completed with a grade of "C-" or better.
- All courses must be completed before the year-long internship unless an exception has been approved by the Student Services Advising Office.
- A passing score on Praxis II is required before enrollment in the teaching internship.

## Other Requirements for the Major

An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and to attain qualifying scores for the State of Maryland on a test of basic skills and the Praxis II assessments. The test of basic skills is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a Professional Development School (PDS)/collaborating partner school.

# GRADUATION PLANS

Click here (https://education.umd.edu/student-resources/student-services/coe-undergraduate-studies-student-services-office/major-four/) for roadmaps for graduation plans in the College of Education.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# OPPORTUNITIES

## Curriculum and Instruction - Elementary Education (TLPL)

### Fieldwork Opportunities

TLPL251 (*Community, Learners, and Classroom Climate*) typically is taken during the sophomore year. This course, which is part of the gateway requirements for admission to the Elementary Education Teacher Education Program, provides an exploration of teaching in the public schools. This course includes a three hour per week field component where students support instruction and student learning while assisting with teaching duties.

TLPL 479G (https://app.testudo.umd.edu/soc/search/?courseId=TLPL479G) ( *Field Experiences in Education; Tutoring*) Taken in the fall of the junior year, this course, which is part of the gateway requirements for admission to the Elementary Education Teacher Education Program, provides an exploration of teaching in the public schools. This course is a semester-long tutoring experience, and is the second in a sequence of five field-based professional experiences for students who have been, or plan to be accepted into the Elementary Education Teacher Preparation Program. The tutoring experience is designed for students to develop positive dispositions and attitudes toward teaching and learning. It is an opportunity to learn how to build relationships with students and to develop effective pedagogical skills.

### Internships

TLPL 479G (https://app.testudo.umd.edu/soc/search/?courseId=TLPL479G) (*Field Experiences in Education; Internship*) Taken in the spring of the junior year, this course is the third of five field-based professional experiences for students who have been accepted into the Elementary Education Teacher Preparation Program. Interns will assist the mentor teacher in the planning, delivery and assessment of instruction and become familiar with the various roles a teacher plays in the teaching-learning process. The internship is an integral component of this semester and includes three immersion weeks in addition to the two full school days each week in a public elementary school classroom.

TLPL 489G (https://app.testudo.umd.edu/soc/search/?courseId=TLPL489G) (*Internship in Education: Elementary Education Residency*) Taken in both the fall and spring of the senior year, this course is the fourth and fifth of five field-based professional experiences for students who are degree seeking in the Elementary Education Teacher Preparation Program. Residents will participate throughout the year in all aspects of a teacher's life in the school. In the fall semester, Resident Interns are beginning to practice the art and craft of teaching under the supervision of a mentor teacher. In the spring semester (student teaching) Resident Interns gradually assume full responsibility

for classroom management, planning, delivery of instruction and assessment with continual guidance from a mentor teacher. Teacher candidates complete the yearlong internship in a network of professional development school settings (PDS Networks). These sites reflect the linguistic, ethnic and economic diversity that is characteristic of the Greater Baltimore-Washington D.C. region. For additional information about the yearlong internship, see the College of Education entry.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

The College of Education also offers a number of scholarships. For more information, see: http://education.umd.edu/admissions/financial-aid-scholarships/.

# Middle School Education Major

2311 Benjamin Building
Phone: 301-405-3324
http://education.umd.edu/academics/departments/tlpl/

**Program Director:** Daniel M. Levin, Ph.D.

Teaching and Learning, Policy and Leadership offers undergraduate curricula in Middle School Education that lead to the Bachelor of Science degree and prepare teachers for teaching in middle schools, grades 4-9.

Graduates of the Middle School Math and Science (grades 4-9) program meet the requirements for certification in Maryland and additional states that are affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education.

## Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria are explained in the College of Education Overview (p. 364).

## Placement in Courses

The Middle School program includes both pre-professional and professional education course work. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program. Admission procedures and criteria are explained in the College of Education entry. Teacher candidates will not be permitted to enroll in professional sequence courses – including the yearlong internship – prior to completion of the selective admissions requirements and full admission to the College of Education.

## Program Learning Outcomes

1. Middle School teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (Association for Middle Level Education – AMLE); state (MSDE); and, institutional standards.
2. Middle School teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.
3. Middle School teacher candidates practice evidence-based decision-making through the use of assessment as well as the critical interpretation of research and inquiry in order to improve educational practice. They accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.
4. Middle School teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (AMLE); state (MSDE); and, institutional standards.
5. Middle School teacher candidates competently integrate technology in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in each of the seven Maryland Teacher Technology Standards.

## REQUIREMENTS

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before undergraduates may enroll in professional education course requirements they must be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and to attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Praxis I is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a Collaborating School (i.e., partner school, PDS - Professional Development School).

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 365) | | |
| **Pre-Professional/Subject Area Courses** | | |
| GEOL100 & GEOL110 | Physical Geology and Physical Geology Laboratory | 4 |
| PHYS115 or PHYS121 | Inquiry into Physics Fundamentals of Physics I | 4 |
| Select one of the following: | | 4 |
| BSCI103 | The World of Biology | |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | 4 |
| AOSC200 & AOSC201 | Weather and Climate and Weather and Climate Laboratory | 4 |
| MATH212 | Elements of Numbers and Operations | 3 |
| MATH213 | Elements of Geometry and Measurement | 3 |
| MATH214 | Elements of Probability and Statistics | 3 |
| MATH312 | Mathematical Reasoning and Proof for Pre-Service Middle School Teachers | 3 |
| MATH314 | Introduction to Probability, Data, Analysis and Statistics for Preservice Middle School Teachers | 3 |
| MATH315 | Algebra for Preservice Middle School Teachers | 3 |

| | | |
|---|---|---|
| Select one of the following: | | 3-4 |
| ASTR100 | Introduction to Astronomy | |
| or ASTR101 | General Astronomy | |
| ASTR121 | Introductory Astrophysics II - Stars and Beyond | |
| BSCI160 & BSCI161 & BSCI120 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab and Insects | |
| BSCI124 & BSCI125 | Plant Biology for Non-Science Students and Plant Biology Laboratory | |
| ENST200 | Fundamentals of Soil Science | |
| GEOG201 & GEOG211 | Geography of Environmental Systems and Geography of Environmental Systems Laboratory | |
| PHYS102 & PHYS103 | Physics of Music and Physics of Music Laboratory | |
| PHYS106 & PHYS107 | Light, Perception, Photography, and Visual Phenomena and Light, Perception, Photography and Visual Phenomena Laboratory | |
| **Pre-Professional Education Courses** | | |
| Select one of the following: | | 3 |
| TLPL101 & TLPL102 | Inquiry Approach to Teaching STEM (Step 1) and Inquiry Teaching of STEM in Middle School | |
| or | | |
| TLPL251 | Community, Learners, and Classroom Climate | |
| TLPL250 | Historical and Philosophical Perspectives on Education | 3 |
| or TLPL360 | Foundations of Education | |
| TLPL252 | Students, Schooling, and Communities | 3 |
| EDHD413 | Adolescent Development | 3 |
| EDHD436 | Cognition and Motivation in Content Area Literacy for Middle-School Students | 3 |
| TLPL462 | Reading in the Secondary School | 3 |
| **Professional Education Courses** | | |
| TLPL413 | Teaching and Learning Middle School Mathematics | 3 |
| TLPL420 | Knowledge, Reasoning, and Learning in Science | 3 |
| TLPL423 | Interdisciplinary Teaching in the Middle Grades I | 2 |
| TLPL424 | Interdisciplinary Teaching in the Middle Grades II | 2 |
| TLPL475 | Equitable Classrooms | 2 |
| TLPL476 | Equity and Pedagogy | 2 |
| TLPL477 | Teaching Academically, Culturally, and Linguistically Diverse Students in Middle School and Secondary Education | 2 |
| TLPL479 | Field Experiences in Education (TLPL479E Field Experience in Middle School Education) | 1 |
| TLPL489 | Internship in Education (TLPL489E Student Teaching: Middle School) | 12 |
| **Total Credits** | | **88-89** |

## Other Requirements for the Major

An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Model Code of Ethics for Educators standards and to attain qualifying scores for the State of Maryland on a test of basic skills (http://www.marylandpublicschools.org/about/Pages/DEE/Certification/testing_info/praxis1.aspx) and Praxis II assessments. The test of basic skills is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a public school PDS setting.

# GRADUATION PLANS

Click here (https://education.umd.edu/student-resources/student-services/coe-undergraduate-studies-student-services-office/major-four/) for roadmaps for graduation plans in the College of Education.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# OPPORTUNITIES

## Teaching and Learning, Policy and Leadership - Middle School (TLPL)

### Internships

The yearlong internship, which is the culminating experience in the teacher preparation program, takes place in a public school setting.

### Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

The College of Education also offers a number of scholarships. For more information, see: http://education.umd.edu/admissions/financial-aid-scholarships/.

# Secondary Education Certificate

**College of Education**
1204 Benjamin Building
Phone: 301-405-2364
http://education.umd.edu/studentinfo/

The Certificate Program in Secondary Education is currently under review. Please see an advisor in Teaching and Learning, Policy and Leadership (TLPL) for more information on this pathway and other pathways to certification.

# Secondary Education Major - Art

**Program Director:** Margaret Walker, Ph.D.

## Art Education (pre K-12)

The Art Education curriculum is designed to prepare individuals to teach art in elementary through secondary schools. It provides prospective art teachers with a knowledge base about the theories and best practices relevant to effective pedagogy, as well as current education and art education goals and standards. Teacher candidates admitted to Art

Education complete the Bachelor of Arts and are required to have an academic content major.

## Secondary Education Pathways

The Department of Teaching and Learning, Policy and Leadership offers undergraduate curricula in secondary education that lead to the Bachelor of Science or Bachelor of Arts degree and prepares teachers in various subject areas for teaching in middle schools, secondary schools (grades 7-12), and PreK-12 settings (Art and World Languages).

Multiple pathways are available for individuals who are interested in teaching at the secondary level:

The Dual Major option, which is designed for incoming freshmen or sophomores, leads to the Bachelor's degree with a major in an academic content area plus a second major in secondary education. All secondary majors are required to have an academic content major which satisfies the requirements of the academic department and meets the standards for teacher certification. Candidates who follow the proposed sequencing of courses can complete both majors in four years with careful advisement and scheduling;

The five-year Integrated Master's with certification program. See http://www.education.umd.edu/MCERT/.

Graduates of the Secondary Education programs meet the requirements for certification in Maryland and additional states that are affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education.

***Note:*** For more information on the Mathematics Education and Science Education programs, please visit the Terrapin Teachers website http://terrapinteachers.umd.edu.

## Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria can be found on the College of Education, College Requirements tab (p. 364).

## Placement in Courses

The Secondary Education programs include both pre-professional and professional education course work. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program. Admission procedures and criteria are explained in the College of Education entry. Teacher candidates will not be permitted to enroll in professional sequence courses — including the yearlong internship — prior to completion of the selective admissions requirements and full admission to the College of Education.

## Program Learning Outcomes

1. Secondary Education teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (e.g., National Council of Teachers of English - NCTE, National Council of Teachers of Mathematics - NCTM, etc.); state (MSDE); and, institutional standards.
2. Secondary Education teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.
3. Secondary Education teacher candidates practice evidence-based decision-making through the use of assessment as well as the critical interpretation of research and inquiry in order to improve educational practice. They accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.
4. Secondary Education teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (e.g., NCTE, NCTM, etc.); state (MSDE); and, institutional standards.
5. Secondary Education teacher candidates competently integrate technology in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in each of the seven Maryland Teacher Technology Standards.

For more information on the sequence of pre-professional and professional courses, consult the Curriculum and Instruction program advisor.

# REQUIREMENTS

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before undergraduates may enroll in professional education course requirements they must be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Model Code of Ethics for Educators (MCEE) standards and to attain qualifying scores for the State of Maryland on a test of basic skills (Praxis CORE, SAT, ACT or GRE) and Praxis II assessments. The test of basic skills is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a public Collaborating School (i.e., partner school, PDS - Professional Development School).

The department of Teaching and Learning, Policy and Leadership offers a variety of secondary education programs-tracks leading to the Bachelor of Science and Bachelor of Arts degrees. Teacher candidates who complete a secondary education program at UM meet the Maryland State Department of Education requirements for the Professional Eligibility Certificate. Consult the Curriculum and Instruction program advisor for updated information.

Secondary Math Education and Science Education are part of Terrapin Teachers, an innovative program designed to produce a new generation of highly qualified instructors in STEM subjects. In this program, you can earn a STEM degree PLUS eligibility for certification as a middle or high school teacher. For more information about this program please visit our website at the following link: tt.umd.edu (http://www.tt.umd.edu/).

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 365) | | |
| **Pre-Professional/Subject Area Courses** [1] | | |
| ARTH200 | Art and Society in Ancient and Medieval Europe and the Mediterranean | 3 |

| | | |
|---|---|---|
| ARTH201 | Art and Society in the West from the Renaissance to the Present | 3 |
| ARTT100 | Two-Dimensional Design Fundamentals | 3 |
| ARTT110 | Elements of Drawing I | 3 |
| ARTT150 | Introduction to Art Theory | 3 |
| ARTT200 | Three-Dimensional Art Fundamentals | 3 |
| ARTT210 | Elements of Drawing II | 3 |
| ARTH | 300-400 level | 6 |
| ARTT320 | Elements of Painting | 3 |
| ARTT418 | Advanced Drawing Studio | 3 |
| ARTT428 | Advanced Painting Studio | 3 |
| TLPL437 | Studio Processes and Materials: 3D [2] | 3 |
| Select one of the following: | | 3 |
| ARTT340 | | |
| ARTT341 | Elements of Printmaking: Woodcut and Relief | |
| ARTT343 | Elements of Printmaking: Screen Printing | |
| ARTT344 | | |
| **Pre-Professional/Education Courses** | | |
| EDHD413 | Adolescent Development | 3 |
| EDHD426 | Cognitive and Motivational Literacy Content | 3 |
| Select one of the following: | | 3 |
| TLPL360 | Foundations of Education | |
| TLPL250 | Historical and Philosophical Perspectives on Education | |
| **Professional Education Courses** | | |
| TLPL435 | Art Education Methods I [2] | 3 |
| EDSP470 | Introduction to Special Education | 3 |
| TLPL433 | Foundations of Art Education [3] | 3 |
| TLPL447 | Art Education Methods II [3,4] | 3 |
| TLPL479 | Field Experiences in Education (TLPL479A Field Experiences in Education: Art) | 3 |
| TLPL436 | Studio Processes and Materials: 2D | 3 |
| TLPL489 | Internship in Education (TLPL489A Internship in Education) | 12 |
| TLPL478 | Professional Seminar in Education (TLPL478A Professional Seminar in Education: Art (Spring Senior Year)) | 3 |
| TLPL478 | Professional Seminar in Education (TLPL478A Professional Seminar in Education: Art (Fall Senior Year) ) | 1 |
| **Total Credits** | | **85** |

[1] Note: Course Sequencing is under review.
[2] Spring only
[3] Fall only
[4] TLPL430 and TLPL447 taken concurrently

# GRADUATION PLANS

Click here (https://education.umd.edu/student-resources/student-services/coe-undergraduate-studies-student-services-office/major-four/) for roadmaps for graduation plans in the College of Education.

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- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Secondary Education Major - English

**Program Director:** Wayne H. Slater, Ph.D.

## English Education (Grades 7-12)

This double major is designed for students seeking certification to teach English (English Language Arts) in grades 7-12. The curriculum includes a range of courses that provide future educators with the background they need to teach English at the secondary level, including a rigorous foundation in British and American literary history and a substantive knowledge of language, writing, and rhetorical studies. Completion of the English and professional education courses with field experiences in diverse school settings results in the awarding of a Bachelor of Arts (B.A.) degree with a double major in English and Secondary Education. The program also meets the teaching certification or licensure requirements for the State of Maryland and most other states.

## Secondary Education Pathways

The Department of Teaching and Learning, Policy and Leadership offers undergraduate curricula in secondary education that lead to the Bachelor of Science or Bachelor of Arts degree and prepares teachers in various subject areas for teaching in middle schools, secondary schools (grades 7-12), and PreK-12 settings (Art and World Languages).

Multiple pathways are available for individuals who are interested in teaching at the secondary level:

The Dual Major option, which is designed for incoming freshmen or sophomores, leads to the Bachelor's degree with a major in an academic content area plus a second major in secondary education. All secondary majors are required to have an academic content major which satisfies the requirements of the academic department and meets the standards for teacher certification. Candidates who follow the proposed sequencing of courses can complete both majors in four years with careful advisement and scheduling;

The five-year Integrated Master's with certification program. See http://www.education.umd.edu/MCERT/.

Graduates of the Secondary Education programs meet the requirements for certification in Maryland and additional states that are affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education.

***Note:*** For more information on the Mathematics Education and Science Education programs, please visit the Terrapin Teachers website http://terrapinteachers.umd.edu.

## Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria can be found on the College of Education, College Requirements tab (p. 364).

## Placement in Courses

The Secondary Education programs include both pre-professional and professional education course work. Before undergraduates may enroll in courses identified as part of the professional sequence, they

must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program. Admission procedures and criteria are explained in the College of Education entry. Teacher candidates will not be permitted to enroll in professional sequence courses — including the yearlong internship — prior to completion of the selective admissions requirements and full admission to the College of Education.

# Program Learning Outcomes

1. Secondary Education teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (e.g., National Council of Teachers of English - NCTE, National Council of Teachers of Mathematics - NCTM, etc.); state (MSDE); and, institutional standards.
2. Secondary Education teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.
3. Secondary Education teacher candidates practice evidence-based decision-making through the use of assessment as well as the critical interpretation of research and inquiry in order to improve educational practice. They accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.
4. Secondary Education teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (e.g., NCTE, NCTM, etc.); state (MSDE); and, institutional standards.
5. Secondary Education teacher candidates competently integrate technology in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in each of the seven Maryland Teacher Technology Standards.

# REQUIREMENTS

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before undergraduates may enroll in professional education course requirements they must be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Model Code of Ethics for Educators (MCEE) standards and to attain qualifying scores for the State of Maryland on a test of basic skills (Praxis CORE, SAT, ACT or GRE) and Praxis II assessments. The test of basic skills is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a public Collaborating School (i.e., partner school, PDS - Professional Development School).

The department of Teaching and Learning, Policy and Leadership offers a variety of secondary education programs-tracks leading to the Bachelor of Science and Bachelor of Arts degrees. Teacher candidates who complete a secondary education program at UM meet the Maryland State Department of Education requirements for the Professional Eligibility Certificate. Consult the Curriculum and Instruction program advisor for updated information.

Secondary Math Education and Science Education are part of Terrapin Teachers, an innovative program designed to produce a new generation of highly qualified instructors in STEM subjects. In this program, you can earn a STEM degree PLUS eligibility for certification as a middle or high school teacher. For more information about this program please visit our website at the following link: tt.umd.edu (http://www.tt.umd.edu/).

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 365) | | |
| **Pre-Professional/Subject Area Courses** | | |
| Students must successfully complete the following five elements: [1] | | |
| ELEMENT 1: This is English | | 3 |
| ENGL301 | This is English: Fields and Methods | |
| ELEMENT 2: Historical Studies | | 15 |
| Students must take 1 course in at least 5 out of these 6 historical periods: | | |
| Beginning and Medieval | | |
| Early Modern | | |
| Eighteenth Century | | |
| Nineteenth Century | | |
| Twentieth Century | | |
| Contemporary | | |
| ELEMENT 3: Language, Writing, and Rhetoric | | 9 |
| Students must take 1 course in each of following topics, leaving the remaining 3 credits open for any language, writing, or rhetoric course: | | |
| History, Analysis, and Theory | | |
| Practice, Performance, and Pedagogy | | |
| ELEMENT 4: Electives | | 12 |
| To allow students to explore additional topics, skills, and encounters of interest, the major includes elective credits, which may be filled by any ENGL or CMLT course. | | |
| ELEMENT 5: Perspectives, Methods, Writing, and Preparation for the Core Curriculum | | |
| This element is a set of co-requirements, meaning that these should be fulfilled in the process of completing Elements 2-4 of the major. That is, students may count the same course toward one co-requirement and one requirement in Elements 2-4. | | |
| American Literature: Future educators in the Common Core Curriculum require a knowledge of American literary history, so students are required to take at least one course on American literature. | | |
| Shakespeare: Future educators need to be prepared to teach Shakespeare's works, so students will take at least one course on Shakespeare. | | |
| Differences and Diasporas: Students will take at least one course focusing on minority and other non-dominant voices pertaining to forms of social difference, such as gender, sexuality, ethnicity, race, and disability. | | |
| Methods: Students will take at least 1 course that foregrounds major approaches within English Studies, including, poetics, critical theory, discourse analysis, critical making, and more. | | |
| Advanced Writing: To ensure that students have dedicated time, space, and guidance in composition and analysis, they must take at least one course designated as Advanced Writing. [2] | | |

| | | |
|---|---|---|
| **Pre-Professional/Education Courses** | | |
| COMM230 | Argumentation and Debate | 3 |
| or COMM330 | Argumentation and Public Policy | |
| or COMM402 | Communication Theory and Process | |
| EDHD413 | Adolescent Development | 3 |
| EDHD426 | Cognitive and Motivational Literacy Content | 3 |
| TLPL488 | Special Topics in Education (TLPL488B Teaching Academically, Culturally, and Linguistically Diverse Students in Secondary Eductation) | 2 |
| Select one of the following: | | 3 |
| TLPL360 | Foundations of Education | |
| TLPL250 | Historical and Philosophical Perspectives on Education | |
| **Professional Education Courses** | | |
| TLPL457 | Literature for Adolescents | 3 |
| TLPL456 | Teaching Writing [3] | 3 |
| TLPL451 | Teaching and Learning in Secondary Education: English | 3 |
| TLPL452 | Bases for English Language Instruction | 3 |
| TLPL479 | Field Experiences in Education (TLPL479C Field Experience in English Teaching) [3] | 2 |
| TLPL300 | Digital Learning Tools and Communities | 1 |
| TLPL478 | Professional Seminar in Education [4] | 2 |
| TLPL489 | Internship in Education [4] | 12 |
| **Total Credits** | | **82** |

1 See https://go.umd.edu/EnglishEducation (https://go.umd.edu/EnglishEducation/) for an up-to-date list of approved courses.
2 Students cannot count their Fundamental Studies Professional Writing course toward this requirement (or toward the double major more generally).
3 TLPL479C and TLPL456 taken concurrently
4 TLPL478C and TLPL489C taken concurrently

For more information on the sequence of pre-professional and professional courses, consult the Curriculum and Instruction program advisor.

# GRADUATION PLANS

Click here (https://education.umd.edu/student-resources/student-services/coe-undergraduate-studies-student-services-office/major-four/) for roadmaps for graduation plans in the College of Education.

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- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Secondary Education Major - Mathematics

**Program Director:** Anisha Campbell, Ph.D.

# MATHEMATICS EDUCATION (GRADES 7-12)

Undergraduates who complete the Mathematics Education curriculum receive the Bachelor of Science degree and meet the MSDE requirements for the Professional Eligibility Certificate. Teacher candidates admitted to Mathematics Education are required to have an academic content major and must complete the program requirements (p. 389). Please check with the MATH department regarding specific math courses to be taken.

## Secondary Education Pathways

The Department of Teaching and Learning, Policy and Leadership offers undergraduate curricula in secondary education that lead to the Bachelor of Science or Bachelor of Arts degree and prepares teachers in various subject areas for teaching in middle schools, secondary schools (grades 7-12), and PreK-12 settings (Art and World Languages).

Multiple pathways are available for individuals who are interested in teaching at the secondary level:

The Dual Major option, which is designed for incoming freshmen or sophomores, leads to the Bachelor's degree with a major in an academic content area plus a second major in secondary education. All secondary majors are required to have an academic content major which satisfies the requirements of the academic department and meets the standards for teacher certification. Candidates who follow the proposed sequencing of courses can complete both majors in four years with careful advisement and scheduling;

The five-year Integrated Master's with certification program. See http://www.education.umd.edu/MCERT/.

Graduates of the Secondary Education programs meet the requirements for certification in Maryland and additional states that are affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education.

***Note:*** For more information on the Mathematics Education and Science Education programs, please visit the Terrapin Teachers website http://terrapinteachers.umd.edu.

## Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria can be found on the College of Education, College Requirements tab (p. 364).

## Placement in Courses

The Secondary Education programs include both pre-professional and professional education course work. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program. Admission procedures and criteria are explained in the College of Education entry. Teacher candidates will not be permitted to enroll in professional sequence courses — including the yearlong internship — prior to completion of the selective admissions requirements and full admission to the College of Education.

## Program Learning Outcomes

1. Secondary Education teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional

(e.g., National Council of Teachers of English - NCTE, National Council of Teachers of Mathematics - NCTM, etc.); state (MSDE); and, institutional standards.

2. Secondary Education teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.
3. Secondary Education teacher candidates practice evidence-based decision-making through the use of assessment as well as the critical interpretation of research and inquiry in order to improve educational practice. They accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.
4. Secondary Education teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (e.g., NCTE, NCTM, etc.); state (MSDE); and, institutional standards.
5. Secondary Education teacher candidates competently integrate technology in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in each of the seven Maryland Teacher Technology Standards.

# REQUIREMENTS

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before undergraduates may enroll in professional education course requirements they must be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Model Code of Ethics for Educators (MCEE) standards and to attain qualifying scores for the State of Maryland on a test of basic skills (Praxis CORE, SAT, ACT or GRE) and Praxis II assessments. The test of basic skills is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a public Collaborating School (i.e., partner school, PDS - Professional Development School).

The department of Teaching and Learning, Policy and Leadership offers a variety of secondary education programs-tracks leading to the Bachelor of Science and Bachelor of Arts degrees. Teacher candidates who complete a secondary education program at UM meet the Maryland State Department of Education requirements for the Professional Eligibility Certificate. Consult the Curriculum and Instruction program advisor for updated information.

Secondary Math Education and Science Education are part of Terrapin Teachers, an innovative program designed to produce a new generation of highly qualified instructors in STEM subjects. In this program, you can earn a STEM degree PLUS eligibility for certification as a middle or high school teacher. For more information about this program please visit our website at the following link: tt.umd.edu (http://www.tt.umd.edu/).

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 365) | | |
| **Pre-Professional/Education Courses** | | |
| EDHD426 | Cognitive and Motivational Literacy Content | 3 |
| TLPL101 | Inquiry Approach to Teaching STEM (Step 1) | 1 |
| TLPL102 | Inquiry Teaching of STEM in Middle School | 2 |
| Select one of the following: | | 3 |
| TLPL360 | Foundations of Education | |
| TLPL250 | Historical and Philosophical Perspectives on Education | |
| MATH274 | History of Mathematics | 3 |
| MATH470 | Mathematics for Secondary Education | 3 |
| TLPL488 | Special Topics in Education | 1-3 |
| **Professional Education Courses** | | |
| BSCI348 | Special Topics in Cell Biology and Molecular Genetics | 1-4 |
| TLPL401 | Student-Centered Curriculum and Instruction | 3 |
| TLPL403 | Teaching and Learning High School Mathematics (Fall only, Senior Year) | 3 |
| TLPL479 | Field Experiences in Education (TLPL479D Field Experience in Secondary Mathematics Education. Fall only, Senior Year) | 1 |
| TLPL478 | Professional Seminar in Education (TLPL478D ) | 1 |
| TLPL489 | Internship in Education (TLPL489D Student Teaching in Secondary Math) | 12 |
| TLPL488 | Special Topics in Education (TLPL488B Teaching Academically, Culturally, and Linguistically Diverse Students in Secondary Education) | 2 |
| **Total Credits** | | **39-44** |

# GRADUATION PLANS

Click here (https://education.umd.edu/student-resources/student-services/coe-undergraduate-studies-student-services-office/major-four/) for roadmaps for graduation plans in the College of Education.

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# Secondary Education Major - Science

**Program Director:** Anisha Campbell, Ph.D.

## Science Education (Grades 7-12)

Please check with the science department regarding specific course work.

Teacher candidates may earn credentials in biology, chemistry, geology, physics or agriculture. Undergraduates admitted to the secondary program in science education must complete a major in their area of specialization. Candidates should consult the respective departments for requirements. For more information, please see https://education.umd.edu/academics/programs/undergraduate/science-education-terrapin-teachers-bachelor-science-bs (https://education.umd.edu/academics/programs/undergraduate/science-education-terrapin-teachers-bachelor-science-bs/).

# Secondary Education Pathways

The Department of Teaching and Learning, Policy and Leadership offers undergraduate curricula in secondary education that lead to the Bachelor of Science or Bachelor of Arts degree and prepares teachers in various subject areas for teaching in middle schools, secondary schools (grades 7-12), and PreK-12 settings (Art and World Languages).

Multiple pathways are available for individuals who are interested in teaching at the secondary level:

The Dual Major option, which is designed for incoming freshmen or sophomores, leads to the Bachelor's degree with a major in an academic content area plus a second major in secondary education. All secondary majors are required to have an academic content major which satisfies the requirements of the academic department and meets the standards for teacher certification. Candidates who follow the proposed sequencing of courses can complete both majors in four years with careful advisement and scheduling;

The five-year Integrated Master's with certification program. See http://www.education.umd.edu/MCERT/.

Graduates of the Secondary Education programs meet the requirements for certification in Maryland and additional states that are affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education.

***Note:*** For more information on the Mathematics Education and Science Education programs, please visit the Terrapin Teachers website http://terrapinteachers.umd.edu.

# Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria can be found on the College of Education, College Requirements tab (p. 364).

# Placement in Courses

The Secondary Education programs include both pre-professional and professional education course work. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program. Admission procedures and criteria are explained in the College of Education entry. Teacher candidates will not be permitted to enroll in professional sequence courses — including the yearlong internship — prior to completion of the selective admissions requirements and full admission to the College of Education.

# Program Learning Outcomes

1. Secondary Education teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (e.g., National Council of Teachers of English - NCTE, National Council of Teachers of Mathematics - NCTM, etc.); state (MSDE); and, institutional standards.
2. Secondary Education teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.
3. Secondary Education teacher candidates practice evidence-based decision-making through the use of assessment as well as the critical interpretation of research and inquiry in order to improve educational practice. They accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.
4. Secondary Education teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (e.g., NCTE, NCTM, etc.); state (MSDE); and, institutional standards.
5. Secondary Education teacher candidates competently integrate technology in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in each of the seven Maryland Teacher Technology Standards.

# REQUIREMENTS

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before undergraduates may enroll in professional education course requirements they must be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Model Code of Ethics for Educators (MCEE) standards and to attain qualifying scores for the State of Maryland on a test of basic skills (Praxis CORE, SAT, ACT or GRE) and Praxis II assessments. The test of basic skills is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a public Collaborating School (i.e., partner school, PDS - Professional Development School).

The department of Teaching and Learning, Policy and Leadership offers a variety of secondary education programs-tracks leading to the Bachelor of Science and Bachelor of Arts degrees. Teacher candidates who complete a secondary education program at UM meet the Maryland State Department of Education requirements for the Professional Eligibility Certificate. Consult the Curriculum and Instruction program advisor for updated information.

Secondary Math Education and Science Education are part of Terrapin Teachers, an innovative program designed to produce a new generation of highly qualified instructors in STEM subjects. In this program, you can earn a STEM degree PLUS eligibility for certification as a middle or high school teacher. For more information about this program please visit our website at the following link: tt.umd.edu (http://www.tt.umd.edu/).

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 365) | | |
| **Pre-Professional Education Courses** | | |
| TLPL101 | Inquiry Approach to Teaching STEM (Step 1) | 1 |
| TLPL102 | Inquiry Teaching of STEM in Middle School | 2 |
| EDHD426 | Cognitive and Motivational Literacy Content | 3 |
| TLPL414 | Knowing and Learning in Mathematics and Science | 3 |
| TLPL415 | Perspectives in Science | 3 |
| Select one of the following: | | 3 |
| TLPL360 | Foundations of Education | |

| | | |
|---|---|---|
| TLPL250 | Historical and Philosophical Perspectives on Education | |
| **Professional Education Courses** [1] | | |
| BSCI348 | Special Topics in Cell Biology and Molecular Genetics (BSCI348T Research Methods) | 3 |
| TLPL401 | Student-Centered Curriculum and Instruction | 3 |
| TLPL425 | Learning and Teaching in Science (Fall only, Senior Year) | 3 |
| TLPL479 | Field Experiences in Education (TLPL479F Field Experience in Science Education) | 1 |
| TLPL478 | Professional Seminar in Education (TLPL478F Student Teaching Seminar in Secondary Science) | 2 |
| TLPL489 | Internship in Education (TLPL489F Student Teaching in Secondary Science) | 12 |
| TLPL488 | Special Topics in Education (TLPL488B Teaching Academically, Culturally, and Linguistically Diverse Students in Secondary Education) | 2 |
| **Total Credits** | | **41** |

[1] All areas of science education will be required to complete the following professional education courses.

# GRADUATION PLANS

Click here (https://education.umd.edu/student-resources/student-services/coe-undergraduate-studies-student-services-office/major-four/) for roadmaps for graduation plans in the College of Education.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Secondary Education Major - Social Studies

**Program Director:** Alison Jovanovic, Senior Faculty Specialist, ajovanov@umd.edu

## Social Studies Education (Grades 7-12)

***The Social Studies Education program is under review. Contact an advisor in 1207 Benjamin Building for updated program information.***

Undergraduates in the Social Studies Education program may select an area of concentration in history, geography, or government and politics. Each concentration follows the general requirements of their respective majors in addition to the pre-professional/subject area supporting course work required for certification. Teacher candidates may elect to complete the program for certification in Social Studies by choosing one of three options for completing the program.

## Secondary Education Pathways

The Department of Teaching and Learning, Policy and Leadership offers undergraduate curricula in secondary education that lead to the Bachelor of Science or Bachelor of Arts degree and prepares teachers in various subject areas for teaching in middle schools, secondary schools (grades 7-12), and PreK-12 settings (Art and World Languages).

Multiple pathways are available for individuals who are interested in teaching at the secondary level:

The Dual Major option, which is designed for incoming freshmen or sophomores, leads to the Bachelor's degree with a major in an academic content area plus a second major in secondary education. All secondary majors are required to have an academic content major which satisfies the requirements of the academic department and meets the standards for teacher certification. Candidates who follow the proposed sequencing of courses can complete both majors in four years with careful advisement and scheduling;

The five-year Integrated Master's with certification program. See http://www.education.umd.edu/MCERT/.

Graduates of the Secondary Education programs meet the requirements for certification in Maryland and additional states that are affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education.

***Note:*** For more information on the Mathematics Education and Science Education programs, please visit the Terrapin Teachers website http://terrapinteachers.umd.edu.

## Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria can be found on the College of Education, College Requirements tab (p. 364).

## Placement in Courses

The Secondary Education programs include both pre-professional and professional education course work. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program. Admission procedures and criteria are explained in the College of Education entry. Teacher candidates will not be permitted to enroll in professional sequence courses — including the yearlong internship — prior to completion of the selective admissions requirements and full admission to the College of Education.

## Program Learning Outcomes

1. Secondary Education teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (e.g., National Council of Teachers of English - NCTE, National Council of Teachers of Mathematics - NCTM, etc.); state (MSDE); and, institutional standards.
2. Secondary Education teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.
3. Secondary Education teacher candidates practice evidence-based decision-making through the use of assessment as well as the critical interpretation of research and inquiry in order to improve educational practice. They accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.

4. Secondary Education teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (e.g., NCTE, NCTM, etc.); state (MSDE); and, institutional standards.
5. Secondary Education teacher candidates competently integrate technology in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in each of the seven Maryland Teacher Technology Standards.

# REQUIREMENTS

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before undergraduates may enroll in professional education course requirements they must be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Model Code of Ethics for Educators (MCEE) standards and to attain qualifying scores for the State of Maryland on a test of basic skills (Praxis CORE, SAT, ACT or GRE) and Praxis II assessments. The test of basic skills is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a public Collaborating School (i.e., partner school, PDS - Professional Development School).

The department of Teaching and Learning, Policy and Leadership offers a variety of secondary education programs-tracks leading to the Bachelor of Science and Bachelor of Arts degrees. Teacher candidates who complete a secondary education program at UM meet the Maryland State Department of Education requirements for the Professional Eligibility Certificate. Consult the Curriculum and Instruction program advisor for updated information.

Secondary Math Education and Science Education are part of Terrapin Teachers, an innovative program designed to produce a new generation of highly qualified instructors in STEM subjects. In this program, you can earn a STEM degree PLUS eligibility for certification as a middle or high school teacher. For more information about this program please visit our website at the following link: tt.umd.edu (http://www.tt.umd.edu/).

# Option I: History

This option requires completion of the foreign language requirement and is primarily for those teacher candidates earning their initial degree. Requires 68 semester hours of which 39 credit hours must be in history.

***Note:***The history major requires completion of UNIV101 and a foreign language requirement through the intermediate level. See ARHU advising (p. 146) for details.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 365) | | |
| **Pre-Professional/Subject Area Courses** | | |
| Introductory Courses: | | |
| HIST200 | Interpreting American History: Beginnings to 1877 | 3 |
| or HIST201 | Interpreting American History: From 1865 to the Present | |
| HIST208 | Historical Research and Methods Seminar | 3 |
| HIST elective - Latin America, Middle East, East Asia or Africa | | 3 |
| HIST elective- Britain and Western Erurope OR Eastern Europe and Russia | | 3 |
| HIST408 | Senior Seminar | 3 |
| Select 24 credits of History Electives [1] | | 24 |
| In addition to the required credit hours in history, the social studies education program requires 29 credit hours of course work in geography and the social sciences as outlined below: | | |
| GEOG202 | Introduction to Human Geography | 3 |
| Select one of the following: | | 3 |
| ECON111 | Thinking Like an Economist | |
| ECON175 | Inequality: Determinants and Policy Remedies | |
| ECON181 | Putting a Price on the Environment: An Economist's Perspective on Sustainability | |
| ECON200 | Principles of Microeconomics | |
| ECON201 | Principles of Macroeconomics | |
| Lower-level ECON I-series course | | |
| GVPT170 | American Government | 3 |
| SOCY100 | Introduction to Sociology | 3 |
| or SOCY105 | Understanding Contemporary Social Problems - Frameworks for Critical Thinking and Strategies for Solutions | |
| **Pre-Professional/Education Courses** | | |
| Select one of the following: | | 3 |
| TLPL250 | Historical and Philosophical Perspectives on Education | |
| TLPL360 | Foundations of Education | |
| EDHD413 | Adolescent Development | 3 |
| EDHD426 | Cognitive and Motivational Literacy Content | 3 |
| TLPL300 | Digital Learning Tools and Communities | 1 |
| TLPL488 | Special Topics in Education (TLPL488B Teaching Academically, Culturally, and Linguistically Diverse Students in Secondary Educaiton) | 2 |
| **Professional Education Courses** | | |
| TLPL470 | Knowledge, Reasoning, and Learning in Secondary Social Studies (Fall only, Junior Year) | 3 |
| TLPL471 | Curriculum, Teaching, and Assessment in Secondary Social Studies (Fall only, Senior Year) [3] | 3 |
| TLPL479 | Field Experiences in Education (TLPL479B Field Experience in Secondary Social Studies Teaching, Fall only) [2] | 2 |
| TLPL478 | Professional Seminar in Education (TLPL478B Professional Seminar in Education: Social Studies) | 2 |
| TLPL489 | Internship in Education (TLPL489B Internship in Secondary Schools) | 12 |
| **Total Credits** | | **85** |

[1] 18 credits must be at the junior/senior level,15 credits must be in a concentration, one course must be non-Western

[2] TLPL471 and TLPL479B are taken concurrently

# Option II: Geography

This option is primarily for those teacher candidates earning their initial degree and requires 64 credits of Pre-professional/Subject Area course work. Thirty-five credit hours must be in geography. Nine credit hours of 300 level Gateway courses must be taken in physical geography, human geography, and geographic techniques. The remaining 18 credit hours must include a quantitative methods course and 15 credit hours of upper level systematic geography courses.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 365) | | |
| **Pre-Professional/Subject Area Courses** | | |
| Primary Courses: | | |
| GEOG201 | Geography of Environmental Systems | 3 |
| GEOG211 | Geography of Environmental Systems Laboratory | 1 |
| GEOG202 | Introduction to Human Geography | 3 |
| GEOG212 | Career Planning for Geographical Sciences, GIS, and ENSP Majors | 1 |
| Gateway Courses: | | |
| GEOG3xx | one 300 level physical geography course | 3 |
| GEOG3xx | one 300 level human geography course | 3 |
| GEOG3xx | one 300 level technique course | 3 |
| GEOG3xx/4xx | Upper Level Geography Electives | 15 |
| GEOG306 | Introduction to Quantitative Methods for the Geographical Environmental Sciences | 3 |
| In addition to the required credit hours in geography, the social studies education program requires 29 credit hours of course work in history and the social sciences as outlined below. | | |
| Select one of the following: | | 3 |
| ECON111 | Thinking Like an Economist | |
| ECON175 | Inequality: Determinants and Policy Remedies | |
| ECON181 | Putting a Price on the Environment: An Economist's Perspective on Sustainability | |
| ECON200 | Principles of Microeconomics | |
| ECON201 | Principles of Macroeconomics | |
| Lower-level ECON I-series course | | |
| GVPT170 | American Government | 3 |
| HIST200 | Interpreting American History: Beginnings to 1877 | 3 |
| or HIST201 | Interpreting American History: From 1865 to the Present | |
| HIST208 | Historical Research and Methods Seminar | 3 |
| HIST elective - Latin America, Middle East, East Asia or Africa | | 3 |
| HIST elective - Britain and Western Europe or Eastern Europe and Russia | | 3 |
| SOCY100 | Introduction to Sociology (OR) | 3 |
| or SOCY105 | Understanding Contemporary Social Problems - Frameworks for Critical Thinking and Strategies for Solutions | |
| **Pre-Professional/Education Courses** | | |
| Select one of the following: | | 3 |
| TLPL250 | Historical and Philosophical Perspectives on Education | |
| TLPL360 | Foundations of Education | |
| EDHD413 | Adolescent Development | 3 |
| EDHD426 | Cognitive and Motivational Literacy Content | 3 |
| TLPL488 | Special Topics in Education (TLPL488B Teaching Academically, Culturally, and Linguistically Diverse Students in Secondary Eductation) | 2 |
| **Professional Education Courses** | | |
| TLPL470 | Knowledge, Reasoning, and Learning in Secondary Social Studies | 3 |
| TLPL471 | Curriculum, Teaching, and Assessment in Secondary Social Studies (Fall only, Senior Year) [1] | 3 |
| TLPL479 | Field Experiences in Education (TLPL479B Field Experience in Teaching Social Studies, Fall only) [1] | 2 |
| TLPL300 | Digital Learning Tools and Communities | 1 |
| TLPL478 | Professional Seminar in Education (TLPL478B Professional Seminar in Secondary Education: Social Studies) | 2 |
| TLPL489 | Internship in Education (TLPL489B Internship in Secondary Schools) | 12 |
| **Total Credits** | | **90** |

[1] TLPL471 and TLPL479B are taken concurrently

# Option III: Government and Politics

**The Government and Politics program is under review. Please check with the Government Department regarding specific course work.**

This option is primarily for those teacher candidates earning their initial degree. Requires a minimum of 65 credit hours of preprofessional/ subject area course work. Thirty-six hours must be in GVPT. At least eighteen of the thirty-six credit hours must be upper-level courses.

All GVPT majors must also complete an approved skills option (a foreign language or three quantitative courses from a select list - see GVPT advising office.)

In addition, the GVPT program is a Limited Enrollment Program (LEP). See GVPT advisor for specific admission requirements.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 365) | | |
| **Pre-Professional/Subject Area Courses** | | |
| Introductory Courses: | | |
| GVPT170 | American Government | 3 |
| GVPT201 | Scope and Methods for Political Science Research | 3 |
| GVPT241 | The Study of Political Philosophy: Ancient and Modern | 3 |
| Electives | GVPT Electives | 9 |
| GVPT3xx/4xx | GVPT Upper Level Courses | 18 |
| Social Science Quantitative Courses or Foreign Language (see GVPT advisor) | | |
| In addition to the required credit hours in GVPT, the social studies education program requires 29 credit hours of course work in history and the social sciences as outlined below. | | |
| HIST200 | Interpreting American History: Beginnings to 1877 | 3 |
| or HIST201 | Interpreting American History: From 1865 to the Present | |
| HIST208 | Historical Research and Methods Seminar | 3 |
| HIST elective - Latin America, Middle East, East Asia or Africa | | 3 |

| | | |
|---|---|---|
| HIST elective - Britain and Western Europe or Eastern Europe and Russia | | 3 |
| Select one of the following: | | 3 |
| ECON111 | Thinking Like an Economist | |
| ECON175 | Inequality: Determinants and Policy Remedies | |
| ECON181 | Putting a Price on the Environment: An Economist's Perspective on Sustainability | |
| ECON200 | Principles of Microeconomics | |
| ECON201 | Principles of Macroeconomics | |
| Lower-level ECON I-series course | | |
| GEOG202 | Introduction to Human Geography | 3 |
| SOCY100 | Introduction to Sociology | 3 |
| or SOCY105 | Understanding Contemporary Social Problems - Frameworks for Critical Thinking and Strategies for Solutions | |
| **Pre-Professional Education Courses** | | |
| Complete one of the following | | 3 |
| TLPL250 | Historical and Philosophical Perspectives on Education | |
| TLPL360 | Foundations of Education | |
| EDHD413 | Adolescent Development | 3 |
| EDHD426 | Cognitive and Motivational Literacy Content | 3 |
| TLPL488 | Special Topics in Education (TLPL488B Teaching Academically, Culturally, and Linguistically Diverse Students in Secondary Eductation) | 2 |
| **Professional Education Courses** | | |
| TLPL470 | Knowledge, Reasoning, and Learning in Secondary Social Studies (Fall only, Junior Year) | 3 |
| TLPL471 | Curriculum, Teaching, and Assessment in Secondary Social Studies (Fall only, Senior Year) [1] | 3 |
| TLPL479 | Field Experiences in Education (TLPL479B Field Experience in Secondary Social Studies Teaching. Fall only) [1] | 2 |
| TLPL300 | Digital Learning Tools and Communities | 1 |
| TLPL478 | Professional Seminar in Education | 2 |
| TLPL489 | Internship in Education | 12 |
| **Total Credits** | | **91** |

[1] TLPL471 and TLPL479B are taken concurrently

# GRADUATION PLANS

Click here (https://education.umd.edu/student-resources/student-services/coe-undergraduate-studies-student-services-office/major-four/) for roadmaps for graduation plans in the College of Education.

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- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Secondary Education Major - World Language

**Program Director:** Alejandro Pérez Belda, Ph.D.

## World Language Education (Grades Pre-k-12)

The World Language (WL) Education curriculum is designed for prospective world language teachers in Pre-K-12 who have been admitted to the TLPL Teacher Education Program. Currently, admission is open to qualified candidates seeking teacher certification in Spanish, French, Russian, Italian, Chinese and German. Other languages might be added later for teacher certification. Teacher candidates enrolled in world language education are required to have an academic content major. Consult with an advisor in Curriculum and Instruction for further information.

## Secondary Education Pathways

The Department of Teaching and Learning, Policy and Leadership offers undergraduate curricula in secondary education that lead to the Bachelor of Science or Bachelor of Arts degree and prepares teachers in various subject areas for teaching in middle schools, secondary schools (grades 7-12), and PreK-12 settings (Art and World Languages).

Multiple pathways are available for individuals who are interested in teaching at the secondary level:

The Dual Major option, which is designed for incoming freshmen or sophomores, leads to the Bachelor's degree with a major in an academic content area plus a second major in secondary education. All secondary majors are required to have an academic content major which satisfies the requirements of the academic department and meets the standards for teacher certification. Candidates who follow the proposed sequencing of courses can complete both majors in four years with careful advisement and scheduling;

The five-year Integrated Master's with certification program. See http://www.education.umd.edu/MCERT/.

Graduates of the Secondary Education programs meet the requirements for certification in Maryland and additional states that are affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education.

***Note:*** For more information on the Mathematics Education and Science Education programs, please visit the Terrapin Teachers website http://terrapinteachers.umd.edu.

## Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria can be found on the College of Education, College Requirements tab (p. 364).

## Placement in Courses

The Secondary Education programs include both pre-professional and professional education course work. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program. Admission procedures and criteria are explained in the College of

Education entry. Teacher candidates will not be permitted to enroll in professional sequence courses — including the yearlong internship — prior to completion of the selective admissions requirements and full admission to the College of Education.

## Program Learning Outcomes

1. Secondary Education teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (e.g., National Council of Teachers of English - NCTE, National Council of Teachers of Mathematics - NCTM, etc.); state (MSDE); and, institutional standards.
2. Secondary Education teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.
3. Secondary Education teacher candidates practice evidence-based decision-making through the use of assessment as well as the critical interpretation of research and inquiry in order to improve educational practice. They accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.
4. Secondary Education teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (e.g., NCTE, NCTM, etc.); state (MSDE); and, institutional standards.
5. Secondary Education teacher candidates competently integrate technology in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in each of the seven Maryland Teacher Technology Standards.

## REQUIREMENTS

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before undergraduates may enroll in professional education course requirements they must be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Model Code of Ethics for Educators (MCEE) standards and to attain qualifying scores for the State of Maryland on a test of basic skills (Praxis CORE, SAT, ACT or GRE) and Praxis II assessments. The test of basic skills is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a public Collaborating School (i.e., partner school, PDS - Professional Development School).

The department of Teaching and Learning, Policy and Leadership offers a variety of secondary education programs-tracks leading to the Bachelor of Science and Bachelor of Arts degrees. Teacher candidates who complete a secondary education program at UM meet the Maryland State Department of Education requirements for the Professional Eligibility Certificate. Consult the Curriculum and Instruction program advisor for updated information.

Secondary Math Education and Science Education are part of Terrapin Teachers, an innovative program designed to produce a new generation of highly qualified instructors in STEM subjects. In this program, you can earn a STEM degree PLUS eligibility for certification as a middle or high school teacher. For more information about this program please visit our website at the following link: tt.umd.edu (http://www.tt.umd.edu/).

The following requirements must be met with the WL Education program:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 365) | | |
| **Pre-Professional/Subject Area Courses** [1] | | |
| Primary WL Area | Intermediate (200 level) courses | 6 |
| Primary WL Area | Reading Strategies | 3 |
| Primary WL Area | Grammar and Composition (300-400 levels) | 6 |
| Primary WL Area | Survey of Literature (300-400 levels) | 6 |
| Primary WL Area | Conversation (300-400 levels) | 3 |
| Primary WL Area | Literature (400-above levels) | 6 |
| Primary WL Area | Culture and Civilization | 6 |
| Select one of the following: | | 3 |
| Primary WL Area:Applied Linguistics | | |
| LING200 | Introductory Linguistics [2] | |
| ELECTIVES: Select a minimum of three elective courses in Supporting Area/WL-Related Courses | | 9 |
| **Pre-Professional/Education Courses** [3] | | |
| EDHD413 | Adolescent Development | 3 |
| EDHD426 | Cognitive and Motivational Literacy Content | 3 |
| TLPL462 | Reading in the Secondary School | 3 |
| Select one of the following: | | 3 |
| TLPL360 | Foundations of Education | |
| TLPL250 | Historical and Philosophical Perspectives on Education | |
| **Professional Education Courses** | | |
| TLPL445 | Methods I: K-12 World Language Methods and Technology [4] | 3 |
| TLPL450 | Advanced K-12 World Language Methods and Technology [4] | 3 |
| TLPL479 | Field Experiences in Education (TLPL479J Field Experience in Second Language Education) [4] | 1 |
| TLPL478 | Professional Seminar in Education (TLPL478K Student Teaching Seminar in Secondary Schools: World Language) | 1 |
| TLPL489 | Internship in Education (TLPL489J Teaching Internship in Secondary Schools: World Language) | 12 |
| TLPL488 | Special Topics in Education (TLPL488B Teaching Academically, Culturally, and Linguistically Diverse Students in Secondary Education) | 1-3 |
| **Total Credits** | | **81-83** |

1. In almost all instances, Primary WL Area courses must have been completed prior to the Teaching Internship. Any substitutions for the above must be pre-approved by a WL Education Advisor.
2. Applied Linguistics in the Primary WL Area if available; otherwise LING200 may satisfy this requirement; check with your advisor.
3. The pre-professional courses vary by subject area. Consult the academic department for the specific course requirements for each language area.

[4] Fall only

***Note:*** *The pre-professional courses vary by subject area. Consult the academic department for the specific course requirements for each language area.*

A minimum of six hours of intermediate-level language course work in the major language must precede the required 300-400 level courses. The latter are comprised of a minimum of 30 hours of prescribed course work that includes the areas of reading strategies, grammar and composition, conversation, literature, civilization and culture, and linguistics. Teacher candidates must also take a minimum of nine hours (three courses) of electives in a related area. The second area of concentration must be approved by a FL advisor.

In addition to all coursework, teacher candidates must earn an Advanced Low score on the ACTFL oral proficiency exam in their corresponding foreign language. Majors in Russian, Italian, and Chinese must also earn an Advanced Low score on the ACTFL written proficiency test.

## GRADUATION PLANS

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# Secondary Education Minor

**Program Director:** Loren Jones, Ph.D.

The minor in Secondary Education provides opportunities for undergraduate subject area majors to enroll in a sequence of education courses that helps them to determine if teaching is a viable career option for them. The 15 credit minor may be taken prior to admission into a teacher preparation program. If an undergraduate student pursuing the minor desires to enter an education track, the candidate may apply for the dual major program to obtain certification as a secondary education classroom teacher through completion of a Maryland State Department of Education (MSDE) approved program option. Some of the courses undergraduates take to complete the Minor in Secondary Education may also be applicable toward certification options at the post-baccalaureate level offered through TLPL. These individuals should consult with an advisor in Student Services to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with these programs.

The secondary education minor includes coursework from Teaching and Learning, Policy and Leadership. The curriculum provides a foundation in adolescent development and creating a classroom community with diverse learners along with an introductory methods course in one of the core secondary areas: Art, English, Social Studies, Mathematics, Science, World Languages.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| EDHD413 | Adolescent Development (Students in the Terrapin Teacher program can take TLPL414.) | 3 |
| TLPL481 | Embracing Diversity in the Classroom Community | 3 |
| Select one of the following foundation courses: | | 3 |
| TLPL101 & TLPL102 | Inquiry Approach to Teaching STEM (Step 1) and Inquiry Teaching of STEM in Middle School (Students that select this option must take both TLPL101 and TLPL102. ) | |
| TLPL286 | (Accelerated Introduction to STEM Teaching) | |
| TLPL250 | Historical and Philosophical Perspectives on Education | |
| TLPL360 | Foundations of Education | |
| TLPL415 | Perspectives in Science (This is for students in the Terrapin Teacher program. MATH274 is also an option.) | |
| Select one of the following electives (*Other courses may be approved. Consult with your advisor.) | | 3 |
| Cultural/Identity Studies | | |
| AASP100 | Introduction to African American Studies | |
| AASP202 | Black Culture in the United States | |
| AAST201 | Asian American History | |
| AAST222 | Immigration and Ethnicity in the US | |
| HIST106 | American Jewish Experience | |
| WGSS200 | Introduction to WGSS: Gender, Power, and Society | |
| LGBT200 | Introduction to Lesbian, Gay, Bisexual, and Transgender Studies | |
| LGBT264 | Quare/Queer Contentions: Exploration of Sexualities in the Black Community | |
| LACS234 | Issues in Latin American and Caribbean Studies I | |
| ANTH264 | Immigration Policy, Immigrant Lives (Special Interest Areas ) | |
| Special Interest Areas | | |
| TLPL206 | Forbidden Books: Censorship of Children's and Young Adult Literature | |
| TLPL287 | Inquiry Into Issues in US Public Schooling: Policies, Practice and Promise | |
| TLPL443 | Cross-Cultural Communication and Multilingual Learners | |
| TLPL453 | Life in Two Languages: Understanding Bilingual Communities and Individuals | |
| TLPL457 | Literature for Adolescents | |
| EDHD426 | Cognitive and Motivational Literacy Content | |
| Select one of the following secondary education introductory methods: | | 3 |
| TLPL401 | Student-Centered Curriculum and Instruction (This option is for students in the Terrapin Teacher program.) | |
| TLPL433 | Foundations of Art Education | |
| TLPL451 | Teaching and Learning in Secondary Education: English | |
| TLPL445 | Methods I: K-12 World Language Methods and Technology | |

| | | |
|---|---|---|
| TLPL413 | Teaching and Learning Middle School Mathematics | |
| TLPL420 | Knowledge, Reasoning, and Learning in Science | |
| TLPL470 | Knowledge, Reasoning, and Learning in Secondary Social Studies | |
| **Total Credits** | | **15** |

A total of 15 credits is required. All courses presented for the minor must be passed with a grade of "C-" or better. A cumulative GPA of 2.75 is required for enrollment in the secondary education introductory methods courses (TLPL401, TLPL445, TLPL420, TLPL451, TLPL470, TLPL413). No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park.

# Teaching English for Speakers of Other Languages (TESOL) Education Minor

**Program Director:** Loren Jones, Ph.D.

The minor in TESOL Education provides opportunities for undergraduate subject area majors to complete a sequence of courses that helps them prepare for careers as teachers of English as a second language in US schools and/or prepare them for roles as teachers of English as a foreign language in international settings. If the undergraduate pursuing the minor desires to enter the ESOL teacher preparation track, the candidate may apply for the Five Year Integrated Program option or the one year MCERT Program option; in either case, satisfactorily completed courses in the minor that meet program requirements will be applied to the certification program requirements. Individuals should consult with an advisor in Student Services to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with that program.

The minor in TESOL Education includes coursework from Curriculum and Instruction. The curriculum provides a foundation in second language learning and pedagogy, cross-cultural issues and understanding, and curricular and pedagogical issues which support biliteracy development across contexts. A number of the courses include field components that provide candidates with direct experience in working with multilingual learners. The minor incorporates coursework required for TESOL certification from the Maryland State Department of Education.

## REQUIREMENTS

Courses required for the minor are:

| Course | Title | Credits |
|---|---|---|
| TLPL440 | Foundations of Educating Multilingual Learners | 3 |
| TLPL441 | Methods for Teaching Multilingual Learners [1] | 3 |
| TLPL442 | Foundations of Literacy and Biliteracy Development [1] | 3 |
| TLPL443 | Cross-Cultural Communication and Multilingual Learners | 3 |
| TLPL444 | Teaching and Understanding English Grammar with Multilingual Learners | 3 |
| **Total Credits** | | **15** |

[1] Courses that include required field experiences

# A. James Clark School of Engineering

3110 Jeong H. Kim Engineering Building
Phone: 301-405-8335
http://eng.umd.edu

**Dean:** Samuel Graham, Jr., Ph.D.
**Associate Deans:** Akua Asa-Awuku, Ph.D.; Hugh Bruck, Ph.D.; Rob Briber, Ph.D.; Ken Kiger, Ph.D.; Min Wu, Ph.D.

Discipline-defying combustion experiments aboard the International Space Station. New advanced technologies that help farmers tap the economic potential and environmental benefits of shellfish aquaculture. Wood transformed into something clear, bouncy, bulletproof, and that might help save our planet.

These and other research innovations poised to benefit millions are borne from the A. James Clark School of Engineering, one of the premier engineering schools in the United States.

Maryland Engineering's mission is to be a place where students make a positive impact on the world. We believe in practicing engineering as a public service: innovating for people in communities we may never see or meet, but whose quality of life will be improved through our innovation.

Located a few miles from Washington, D.C., the Clark School is at the center of a constellation of high-tech companies and federal laboratories, offering students access to one of the most vibrant research programs in the country. With industry-leading expertise in areas that are shaping society such as quantum technology, energy, robotics, communications and networking, life cycle and reliability engineering, disaster resilience, and intelligent transportation systems, Clark School students conduct research relied upon by federal agencies, major companies, and other academic institutions alike.

We combine rigorous classroom learning with opportunities for hands-on experience, including the autonomous vehicle project in freshman year and capstone courses in junior and senior years; participation in numerous national and international engineering competitions in which the school is consistently successful; a vibrant entrepreneurial ecosystem; and extensive internship opportunities.

With one of the nation's most active chapters of Engineers Without Borders, Clark School students can apply their skills and energies in the service of others all around the world. Service options closer to home are available through the many student societies, alternative spring breaks, and targeted initiatives started by fellow students.

Society needs solutions to its grand challenges; engineers will play a part in every solution: http://eng.umd.edu.

# Admission Requirements

## Freshmen Admission

### Direct Admissions Requirements

Admission to the A. James Clark School of Engineering is limited. Freshmen applicants are reviewed and will be admitted directly on a competitive basis. Evaluation is based on an applicant's academic record, activities, leadership and demonstrations of potential to succeed. An applicant may apply to any of the majors offered within the School. An applicant also has the option of entering as an Undecided Engineering major and will typically choose a degree program in the first year.

Directly admitted freshmen will be subject to an academic review at the end of the semester in which they attain 45 University of Maryland credits. In order to successfully complete the review, students must have an overall GPA of at least 2.0 and have completed the following sequence of gateway requirements: ENES100, MATH141, PHYS161, and CHEM135 or CHEM271 or the combination of CHEM131 and CHEM134 with a minimum grade of "C-."

Only one repeat of a single gateway course, either at the University of Maryland or at any other university or college, will be considered to meet the review requirements. A course in which a grade of "W" (withdrawn) is earned is counted as an attempt. Students who fail the 45 credit review will be required to change to a major not in the Clark School and may not reapply to any engineering major. Students who must leave the Clark School may appeal in writing to the Associate Dean. Appeals are considered on a case-by-case basis and decisions are made based on the extenuating circumstances presented by the student. All appeals require relevant documentation, and decisions from the Associate Dean are final.

## Transfer Admission

### Direct Admissions Requirements

Internal and external transfer students will be directly admitted to the Clark School if they meet the following Gateway requirements: MATH141 with a "B-" or higher, PHYS161 with a "B-" or higher, either CHEM135 or CHEM271 or CHEM134 with a minimum grade of "C-" or higher (Students who take CHEM134 must also have completed CHEM131 with a minimum grade of "C-"). Students must also have a minimum cumulative GPA of 3.0 in all college-level coursework, and have not previously been admitted to the Clark School of Engineering. Only one repeat of a single Gateway course, either at the University of Maryland or at any other university or college, will be considered to meet the review requirements. A course in which a grade of "W" (withdrawn) is earned is counted as an attempt. Students should wait until all gateway requirements are complete before applying for admission to the School.

## Transfer Admission Appeal Process

All students denied admission to the Clark School may appeal the decision in writing directly to the Associate Dean of Undergraduate Student Affairs in the Clark School.

## Maryland Community College Transfer Students

Students who complete an associate's degree at a Maryland community college may be prepared to enter into the sophomore or junior year in engineering at the University of Maryland if they have completed the required engineering coursework. To ensure that you are enrolling in the correct courses to transfer, please consult the Engineering four-year plans and the Transfer Credit Services website. There may be some courses which are not offered at Maryland community colleges. Students should investigate the feasibility of completing these courses during the summer session at the University of Maryland before starting their junior course work in the fall semester. Students transferring in Fall 2022 and after may apply up to 70 credits from a MD community college to their degree. Any student transferring prior to Fall 2022 may apply up to one half of the degree credits (approximately 60 semester hours) to their degree.

# DEPARTMENTS

# Departments and Units

- Aerospace Engineering (p. 404)
- Chemical and Biomolecular Engineering (p. 409)

- Civil and Environmental Engineering (p. 411)
- Electrical and Computer Engineering (p. 415)
- Fire Protection Engineering (p. 424)
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# ACADEMIC PROGRAMS

## Majors

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- Biocomputational Engineering Major (p. 428)
- Bioengineering Major (p. 430)
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## Minors

- Computer Engineering Minor (p. 419)
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- Science, Technology, Ethics and Policy Minor (ENGR) (p. 439)
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# COLLEGE REQUIREMENTS

## Undergraduate Degree Requirements

Structure of Engineering Curricula: The section below describes the requirements and the prescribed credit hours leading to the Bachelor of Science degrees awarded in the Clark School of Engineering. The courses in each curriculum may be classified in the following categories:

1. Courses in the General Education Program;
2. Courses in Basic Sciences (mathematics, chemistry, and physics);
3. Related technical courses, engineering sciences and other courses approved for one curriculum but offered by another department;
4. Courses in the major department. The courses in each engineering curriculum, as classified below, form a sequential and developmental pattern in subject matter. In this respect, curricula in engineering may differ from curricula in other colleges. Some regulations which are generally applicable to all students may need clarification for purposes of orderly administration among engineering students (see Academic Regulations (p. 69)). Moreover, the Clark School of Engineering establishes policies that supplement university regulations.

### School Regulations

1. The responsibility for proper registration and for satisfying stated prerequisites for any course must rest with the student as does the responsibility for proper achievement in courses in which the student is enrolled. Each student should be familiar with the provisions of this catalog, including the Academic Regulations.
2. Required courses in mathematics, physics, and chemistry have highest priority. It is strongly recommended that every engineering student register for mathematics and chemistry or mathematics and physics each semester until the student has fully satisfied the requirements of the Clark School of Engineering in these subjects.
3. To be eligible for a bachelor's degree in the Clark School of Engineering, a student must have an overall cumulative grade point average of at least a 2.0 and a "C-" or better in all engineering degree requirements (including all technical coursework but not limited to courses taken in MATH, PHYS, CHEM). Students matriculating to UMD in the fall of 2012 or after must also have a 2.0 cumulative GPA in their major courses, minor courses and classes used to satisfy certificate programs.
4. A course taken at UMD in which a grade has been earned may not be repeated via transfer from another institution.
5. Students in the Clark School of Engineering must have a minimum 2.0 University of Maryland GPA to enroll in courses at another institution.
6. All students are required to complete a number of general education courses and must follow the university's requirements regarding completion of the General Education Program. Consult the Academic Regulations section of this catalog for additional information. Engineering students are required to complete a Professional Writing course.
7. All degree programs in the Clark School of Engineering require a minimum of 120 credits plus satisfaction of all department, School, and University general education program requirements (Aerospace Engineering majors are required to complete a minimum of 124 credits). Students should be aware that, for all currently existing engineering programs, the total number of credits necessary for the degree exceeds 120 by some number that depends on the specific major.

Curricula for the various engineering departments are given in this catalog to illustrate how the programs may be completed in four years. These curricula are rigorous and relatively difficult. It is not uncommon for a student to extend their curriculum; this may be necessary or desirable for a variety of reasons. However, students should seek academic advising in order to ensure that courses are taken in the proper sequence.

Another factor impacting the academic plan is the math placement exam. For entering freshmen, the math placement is determined solely by performance on the University math placement exam and not on the Math SAT score. Placement in MATH115 or lower will delay eligibility to take certain engineering courses by a semester.

All students are encouraged to utilize the university's degree auditing system, uAchieve, and to review the audit with their departmental advisor throughout the course of their academic career. The purpose of the audit is to discuss academic progress and to confirm that graduation requirements are met.

## Departments and Degrees

The Clark School of Engineering consists of eight academic departments and offers the degree of Bachelor of Science in the following fields of study: Aerospace Engineering, Bioengineering, Biocomputational Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Cyber-Physical Systems Engineering, Electrical Engineering, Fire Protection Engineering, Materials Science and Engineering, Mechanical Engineering, and Mechatronics Engineering. All of the above programs are accredited by the Engineering Accreditation Commission(s) of ABET, https://www.abet.org (with the exception of Biocomputational Engineering, Cyber-Physical Systems Engineering, and Mechatronics Engineering).

Entering freshmen may enroll in the Clark School as Undecided Engineering. Students declared as Undecided Engineering are advised by the Undergraduate Advising & Academic Support Office. No later than their third semester a student should select an academic degree program. The student's newly declared major department assumes the responsibility for the student's academic guidance, counseling, and program planning from that point until the completion of the degree requirements. For the specific requirements, see the curriculum listing in each engineering department.

## Pathways to Shady Grove Programs

The A. James Clark School of Engineering offers three degrees at the Universities at Shady Grove, located in Rockville, MD – Biocomputational Engineering, Cyber-Physical Systems Engineering, and Mechatronics Engineering. Because these degree programs are exclusively available at Shady Grove, students eligible for admission to the Clark School and who are currently attending the University of Maryland, College Park, may indicate interest in these degree programs by declaring the pre-major.

The Pre-Biocomputational Engineering, Pre-Cyber-Physical Systems Engineering, and Pre-Mechatronics Engineering majors are not degree-granting programs. Rather, these pre-majors are specifically designed for students who plan to transition from the College Park campus to the Shady Grove campus to pursue the Biocomputational Engineering , Cyber-Physical Engineering, and Mechatronics Engineering majors at Shady Grove.

The Universities at Shady Grove only offer the 300 and 400-level degree requirements. Therefore, prior to transitioning to the Shady Grove campus, students must complete all 100 and 200-level prerequisites and must complete their general education requirements.

Prospective freshmen and transfer students are invited to apply into the pre-majors. Applicants for the pre-major codes will be reviewed based on the Clark School of Engineering LEP requirements. If admissible to the college, they would be invited to pursue the pre-majors at College Park until the time when they are ready to transition to the Shady Grove campus.

Students who are pursuing the pre-major codes will be advised as follows: Pre-Biocomputational Engineering will be advised by Bioengineering, Pre-Cyber-Physical Systems Engineering will be advised by the Electrical & Computer Engineering Department, and Pre-Mechatronics Engineering will be advised by Aerospace Engineering.

Students may only remain in the pre-majors up until they have earned 60 cumulative credits (including any prior learning and/or transfer credit). Once 60 credits have been earned, students will be required to change their major to a degree-seeking program. Students will be advised on the steps necessary to transition to the majors at Shady Grove by the Program Coordinators. Any request for an extension on this timeline will be considered an Exception to Policy and must be reviewed by the college and department for consideration.

Students in the Pre-Biocomputational Engineering, Pre-Cyber-Physical Systems Engineering, and Pre-Mechatronics Engineering majors are welcome to change their major into any other engineering degree program.

Due to seat limitations on the College Park campus, the Pre-Biocomputational Engineering and Pre-Mechatronics Engineering major are Limited Enrollment Programs and require that students meet our minimum requirements for admission. However, the Biocomputational Engineering and Mechatronics Engineering degrees at Shady Grove are not limited. Therefore, students who meet the 100 and 200-level course prerequisites for Biocomputational Engineering and Mechatronics Engineering may apply directly to the Shady Grove program.

## Freshmen-Sophomore Years

The freshmen and sophomore years in engineering are designed to lay a strong foundation in mathematics, physical sciences, and the engineering sciences upon which the student will later develop a professional program during the upper division (junior and senior) years. During the first two years, students are introduced to the concepts of engineering design and work in multidisciplinary teams. The Clark School course requirements for the freshmen and sophomore years are similar for all students, regardless of their intended academic program, thus affording the student maximum flexibility in choosing a specific engineering specialization.

## Engineering Sciences

Engineering Science courses represent a common core of basic material offered to students of several different departments. All freshmen and sophomore students of engineering are required to take ENES100. Other ENES courses, ENES102, ENES220, ENES221, and ENES232 are specified by the different departments. The responsibility for teaching the engineering science courses is shared among faculty from different departments by means of the Keystone Program. In addition to the core courses noted above, several courses of general interest to engineering or non-engineering students have been given ENES designations.

# ADVISING

Advising is mandatory prior to registration each semester for all students in the Clark School. Each engineering department has a representative who advises students in their respective discipline. Undecided Engineering students are advised by the Engineering Academic Services Office until they have declared a major, typically in their first year. Refer to the individual program for additional advising information.

During orientation to the university, all students will receive advising from the Engineering Academic Services Office in collaboration with departmental advising representatives.

# OPPORTUNITIES

## Living-Learning Programs

### Flexus: The Dr. Marilyn Berman Pollans Women in Engineering Living & Learning Community

0110 Easton Hall
Phone: 301-405-3931

http://eng.umd.edu/women/current-students/communities/

**Director:** Paige Smith

Flexus: The Dr. Marilyn Berman Pollans Women in Engineering (WIE) Living & Learning Community is a two-year living and learning community with the goal of promoting diversity and inclusion in the field of engineering. In alignment with the mission of the Women in Engineering Program, Flexus promotes diversity, inclusion, and social justice in the field of Engineering through curricular and co-curricular programs. Flexus is an ideal program for students who are looking for community, academic support, and ways to develop as future engineers outside of technical courses. The Flexus community engages closely with the Virtus Community.

### Virtus: A Living and Learning Community for Success in Engineering

0110 Easton Hall
Phone: 301-405-3931
http://eng.umd.edu/women/current-students/communities/

**Director:** Paige Smith

The Virtus Living and Learning Program is a two-year living and learning community designed for engineering students who identify as male. The primary focus of Virtus is on promoting community and inclusion within the Clark School and the field of engineering. Virtus seeks to emphasize the importance of diversity and inclusion in the field of engineering and empower students to shift the culture of engineering to be more inclusive of underrepresented groups in the field of engineering, including, but not limited to, women. Through the promotion of social, intellectual, and leadership development, Virtus seeks to provide the resources and structure for first- and second- year engineering students to be successful through graduation, positively impacting the retention and graduation of undergraduate students in the A. James Clark School of Engineering. To do so, Virtus provides Living and Learning experiences that promote community, critical reflection, and creation of change. The Virtus community works closely with Flexus: Dr. Marilyn Berman Pollans' Women in Engineering Living and Learning Community.

### College Park Scholars - Science, Technology, and Society

1125 Cumberland Hall
Phone: 301-405-7219
http://scholars.umd.edu/programs/sts/

**Director:** David Tomblin

Co-sponsored by the Clark School of Engineering, the Science, Technology and Society (STS) program is one of 12 living-learning programs offered by the College Park Scholars Program. This two-year program for academically talented freshmen and sophomores welcomes all majors, who live together in Cambridge Hall. While building close relationships with program faculty, STS explores the influential social, ethical, and political relationships that drive research and innovation. The program delves into the challenges of living and innovating in a world where emerging science and technologies are becoming increasingly interconnected, pervasive, and powerful. The program's primary goal is to give students career development and analytical skills that help connect science and technology to broader social needs. STS pursues this goal through individual research projects, collaborative problem solving activities, user-centered design projects, and service-learning.

STS students participate in a number of field trips to further their understanding of the program themes and objectives. Sites include the National Institute of Standards and Technology, NASA Goddard Spaceflight Center, United States Patent and Trademark Office and the National Building Museum. Students also have the opportunity to engage in service actives related to the program such as volunteering for Maryland Robotics Day, Women In Engineering's annual DREAM Conference, Maryland Regional Science Bowl, the Science and Engineering Festival, and BitCamp.

STS features three rewarding practicum opportunities:

1. Robotics service-learning program, students explore innovative ways of encouraging STEM education in Prince Georges County schools;
2. Infrastructure and Society, students work with professional engineers on a service-learning project that assesses the safety and viability of infrastructure;
3. Empowering communities with art and technology.

## College Honors Program

Students in the A. James Clark School of Engineering may participate in the University's Honors College, College Park Scholars, Quest, and/or departmental honors programs (see the individual department section for details).

Clark School Engineering Honors Program (https://eng.umd.edu/engineering-honors-program/)

The Clark School offers an Engineering Honors Program that provides eligible students the opportunity to pursue an enriched program of studies that will broaden their perspectives and increase the depth of their knowledge. Engineering students meeting all of the following criteria are eligible to apply:

1. Upper fourth of engineering juniors and seniors;
2. Junior standing or 60 applicable credits;
3. Completion of at least one semester at UMD.

The requirements for completing the program are as follows:

1. An Honors Research Project which often can be used as a technical elective, a written report, and an oral presentation to a faculty panel of the EHP;
2. Successful completion of both Engineering Honors Seminars ENES480 and ENES481;
3. Maintenance of a GPA to remain in the upper third of the class.

For more information see http://eng.umd.edu/current/honors-program/.

## Student Societies and Professional Organizations

### Professional Societies

Each of the engineering departments sponsors student chapters or student sections of a national engineering society. The student chapters sponsor a variety of activities including technical meetings, social gatherings, and School or University service projects. All students are strongly encouraged to join one or more of these chapters.

These organizations are: American Institute of Aeronautics and Astronautics; American Institute of Chemical Engineers; American Nuclear Society; American Society of Civil Engineers; American Society

of Heating, Refrigeration, and Air Conditioning Engineering; American Society of Mechanical Engineers; ASM International; Association for Energy Engineers (AEE); Black Engineers Society; BMES-UMD (Biomedical Engineering Society, UMD chapter); Engineers Without Borders; Institute of Electrical and Electronics Engineers (IEEE); Material Advantage (American Ceramic Society, ASM International and TMS joint chapters); Materials Research Society; Mechanical Contracting Association (MCA); National Fire Protection Association (NFPA); Out in Science, Technology, Engineering and Mathematics (oSTEM); Society of Asian Engineers; Society of Automotive Engineers; Society of Fire Protection Engineers; Society of Hispanic Professional Engineers; Society of Manufacturing Engineers; Society of Women Engineers; and The Vertical Flight Society.

### Honors Societies

The Clark School of Engineering and each of the engineering departments sponsor honors societies. Nominations or invitations for membership are usually extended to junior and senior students based on scholarship, service, and/or other selective criteria. Some of the honors organizations are branches of national societies; others are local groups: Tau Beta Pi (College Honorary); Alpha Eta Mu Beta (Biomedical Engineering ); Alpha Nu Sigma (Nuclear Engineering); Alpha Sigma Mu (Materials Science and Engineering); Chi Epsilon (Civil Engineering); Eta Kappa Nu (Electrical and Computer Engineering); Omega Chi Epsilon (Chemical Engineering); Pi Tau Sigma (Mechanical Engineering); Salamander (Fire Protection Engineering); and Sigma Gamma Tau (Aerospace Engineering).

## Student Engagement and Service Units

### Engineering Academic Services

1131 Glenn L. Martin Hall
Phone: 301-405-9973
engrhelp@umd.edu
http://eng.umd.edu/advising/

**Director:** Suzanne Ashour-Bailey

The Engineering Academic Services Office provides a broad variety of services to assist students during their collegiate careers. Individual advising may focus on a number of student related issues including: schedule planning, course selection, university policy interpretations, career choices, social and personal adjustments, as well as support for students with specific academic concerns. The office also provides orientation to new students, certifies students for graduation, and is instrumental in helping students process administrative forms, and advises prospective internal and external transfer students. The staff works closely with other campus offices to identify resources that address the various needs of our students.

### Engineering Career Services

1131 Glenn L. Martin Hall
Phone: 301-405-3863
CareerEngr@umd.edu
http://eng.umd.edu/careers/

**Director:** Veronica Perrigan

The Engineering Career Services Office assists students in finding cooperative education (co-op), internship, and post-graduation positions. Co-op and internship positions complement classroom learning and provide students with professional level experience, mentoring relationships, integration of theory and practice, confirmation of career choices, and financial compensation. To assist students in their job search we offer a wide variety of workshops on topics such as effective resumes, interview strategies, professionalism, career fair preparation, salary negotiation, and advanced job search techniques. We also provide one-on-one resume critiques, career advising appointments, mock interviews, job-search handouts, an e-newsletter, and a jobs database called Handshake. In addition, students have the opportunity to meet employers by participating in career fairs, networking events, employer information sessions, and special job search presentations conducted by engineering recruiters.

### Office of Global Engineering Leadership

1131 Glenn L. Martin Hall
Phone: 301-405-3857
http://eng.umd.edu/global/

**Director:** Ramsey Jabaji

The Office of Global Engineering Leadership is responsible for creating experiences for engineering students to study and practice global leadership, intercultural communication, managing global teams, and working effectively across differences. Programs include the Clark in Madrid program, engineering-led short-term abroad courses, exchange programs, ENES Equity & Inclusion in Engineering Design courses, Minor in Global Engineering Leadership, Vertically Integrated Project (VIP) Program, and ClarkLEAD undergraduate onboarding initiatives.

### Undergraduate Recruitment and Scholarship Programs

1131 Glenn L. Martin Hall
Phone: 301-405-0287
http://eng.umd.edu/prospective-students/
http://eng.umd.edu/scholarships/

**Director, Recruitment and Outreach:** Erin Wessell
**Program Director, Undergraduate Student Affairs:** Nicole P. Roop

The Office of Undergraduate Recruitment and Scholarship Programs is responsible for outreach and new student recruitment activities in the A. James Clark School of Engineering. Services include undergraduate recruitment, providing K-12 and community college outreach activities, and administering Clark School scholarships for incoming and current students.

### The Center for Minorities in Science and Engineering

1131 Glenn L. Martin Hall
Phone: 301-405-3878
http://cmse.umd.edu

**Director:** Rosemary L. Parker

The Center is dedicated to increasing the enrollment and graduation rates of African American, Latinx/Hispanic, Native American and Alaskan Native/Pacific Islander students majoring in engineering. The Center provides a complete package of services designed to assist students from pre-college through the completion of their doctorate. Services include academic advising, tutorial assistance, scholarship information, outreach programs, job information, support of student organizations, the Louis Stokes Alliances for Minority Participation (LSAMP) BRIDGE Program, the LSAMP Transfer Connections Program, and the LSAMP Undergraduate Research Program.

### Women in Engineering Program

1131 Glenn L. Martin Hall
Phone: 301-405-3931

women_in_engineering@umd.edu
http://eng.umd.edu/women/

**Director:** Paige Smith

The Women in Engineering (WIE) Program is dedicated to promoting the role of women in the field of engineering, with a focus on the recruitment and retention of undergraduate and graduate women engineering students. Although WIE programs and services are designed for engineering students who identify as women, all students are welcome. WIE offers outreach programs for prospective students in addition to opportunities for current students including community-building and professional networking events, the Flexus and Virtus engineering living and learning communities, the Sheila Rohra WIE Connect Peer Mentoring Program, technical skills workshops, tutoring, a student advisory board, weekly newsletters, and support of the Society of Women Engineers.

# Financial Assistance

The Clark School offers scholarships to talented undergraduate engineering students. Scholarship awards are competitive and are awarded based on merit, financial need, and a variety of other factors. Scholarship awards are available to both incoming and continuing students.

New freshmen are automatically considered for most Clark School scholarships if they apply to the University of Maryland by the November 1 early action deadline and complete the FAFSA by the university's deadline. Current and incoming students must complete the Clark School's online scholarships application by May 31 for best consideration. Log in to http://umd.scholarshipuniverse.com to complete your application and visit http://eng.umd.edu/scholarships/ and http://financialaid.umd.edu/resources-policies/scholarship-search/ for more information.

The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For more information, visit: http://financialaid.umd.edu.

Within the Clark School, the Clark Foundation Scholarship Programs (https://eng.umd.edu/clark-scholarship-programs/) oversees three scholarship programs funded by the A. James & Alice B. Clark Foundation:

- The Clark Scholars Program
- The Clark Opportunity Transfer Scholars Program
- The A. James Clark Scholarships, which include the Clark Legacy, William Barotti, Clark Enterprises, Richard Getsinger, and Benjamin T. Rome scholarships.

## A. James Clark Scholars Program

The A. James Clark Scholars Program is the A. James & Alice B. Clark Foundation's signature academic program, combining engineering, business, leadership and community service. This need-based scholarship program supports up to 10 new state of Maryland freshmen enrolled in the Clark School of Engineering each year. The minimum scholarship award amount will be $7,500 annually for four years (eight semesters) of study, and may be higher based on financial need from the FAFSA and other financial aid resources.

## Clark Opportunity Transfer Scholars Program

The Clark Opportunity Transfer Scholars Program offers a scholarship for four semesters of study covering in-state tuition, mandatory fees, and differential tuition. It also includes comprehensive academic, career, and research support. Each year, the program supports up to 20 new transfer students enrolled in the Clark School of Engineering who previously attended state of Maryland community colleges.

## Clark Legacy Scholarships

The A. James Clark Legacy Scholarship is awarded to entering freshmen based on both financial need and merit. The Clark Legacy Scholarship is typically a $5,000 scholarship renewable for an additional year, provided the recipient is an undergraduate engineering student, maintains good academic standing, and makes progress toward an engineering degree. There is no application for the scholarship; students selected for the award will be considered and selected based on their freshman application. There is no application for the scholarship; students selected for the award will be considered and selected based on their freshman application.

## Benjamin T. Rome Scholarship

The Benjamin T. Rome Scholarship is awarded to one entering freshman student each year based on merit. The Rome Scholarship covers all expenses (tuition and fees, room and board) plus a book allowance and a stipend. The award is renewable for up to three additional years provided the recipient is an undergraduate engineering student, maintains good academic standing, and makes progress toward an engineering degree. There is no application for the scholarship; students selected for the award will be considered and selected based on their freshman application.

## William Barotti and Richard Getsinger Scholarships

The William Barotti Scholarship and the Richard Getsinger Scholarship honor two of Mr. Clark's longtime employees. Each year, the William Barotti and the Richard Getsinger Scholarships provide a $7,500 scholarship for two entering freshmen engineering students based on merit. Awards are renewable for up to three additional years, provided the recipient is an undergraduate engineering student, maintains good academic standing, and makes progress toward an engineering degree. There is no application for the scholarship; students selected for the award will be considered and selected based on their freshman application.

## Clark Enterprises Scholarship

The Clark Enterprises Scholarship is awarded to one student each year based on merit. The Clark Enterprises Scholarship is a $7,500 scholarship award and is renewable for up to three additional years provided the recipient is an undergraduate engineering student, maintains good academic standing, and makes progress toward an engineering degree. There is no application for the scholarship; students selected for the award will be considered and selected based on their freshman application.

# Undergraduate Research Programs

Undergraduate research programs allow qualified undergraduate students to work with research laboratory directors in departments, thus giving students a chance for a unique experience in research and engineering design. Projects in engineering allow undergraduate students to do independent study under the guidance of faculty members in an

area of mutual interest. For more information, contact the department or research center you are interested in performing research.

## Engineering Information Technologies (EIT)

2125 J.M. Patterson Building
Phone: 301-405-3885
eit-help@umd.edu
http://eit.umd.edu

**Assistant Dean, Strategic Operations and IT:** Jim Zahniser

Keeping pace with the latest developments in the area of information technologies worldwide, the Clark School of Engineering provides a state of-the-art computing environment that will be the standard for engineers in the years ahead. Faculty and students have access to computer workstations with a wide range of engineering software and technology enabled classrooms with the latest presentation capabilities. In addition, EIT provides access and support on the latest tools and services for online collaboration, presentation technologies, and infrastructure services.

## EIT, Instructional Technologies

2125 J.M. Patterson Building
Phone: 301-405-4907
Fax: 301-314-9639
http://dets.umd.edu

**Director:** Marty Ronning, 301-405-4899

Instructional Technologies provides distance education technology and AV support service to the A. James Clark School of Engineering and the UMCP campus. We serve over 1,000 students per year by providing graduate and undergraduate courses in engineering and other related fields. In addition, we also provide technical services to the campus such as video conferencing, video capturing, and more.

# Aerospace Engineering

**A. James Clark School of Engineering**
3179 Glenn L. Martin Hall
Phone: 301-405-2376
aero_undergrad@umd.edu
http://aero.umd.edu

Aerospace engineering is concerned with the design, construction, and science of aircraft and spacecraft. It is divided into two major and overlapping branches: aeronautical engineering and astronautical engineering. The former deals with craft that stay within Earth's atmosphere, and the latter with craft that operate outside it.

Aerospace engineers design, develop, and test aircraft, spacecraft, and missiles, and supervise their manufacture. Those who work with aircraft are called aeronautical engineers, and those working specifically with spacecraft are called astronautical engineers. Aerospace engineers develop new technologies for use in aviation, defense systems, and space exploration, often specializing in areas such as structures, propulsion systems, vehicle movement and control, communications, and overall vehicle design.

# PROGRAMS

## Major

- Aerospace Engineering Major (p. 405)
- Mechatronics Engineering Major (p. 407)

# ADVISING

Advising is mandatory each semester. First year students and first semester transfer students are primarily advised by the Student Services staff members. After the first year, students are assigned to a faculty advisor whose permission is required for course registration each semester. An updated assigned faculty advisor list is maintained and the link is sent each semester via email to the undergraduate student listserv. Detailed information about advising is available on the department's website (https://aero.umd.edu/undergraduate/current-students/advising-support/).

Current and prospective students may also need to meet with a department (staff) advisor even after they are assigned to a faculty advisor. Examples of departmental staff advising include: C.A.R.E. (academic probation), double major/double degree planning, planning for study abroad, combined bachelors/masters planning, etc. Department staff advisors are also available to assist students who have unique circumstances and need additional help with their four-year degree planning.

The benefits associated with our faculty advising program are many; it also entails a number of obligations on the student's part. Students are responsible for preparing for each advising session and providing certain information to their faculty advisor. By complying with these responsibilities, the advisor is better able to guide and facilitate student development thus allowing students to get more out of the program.

1. Students should keep their faculty advisor informed about their academic progress, professional development, and any issues and/or concerns about academics or student life.
2. Students should meet with their faculty advisor every semester PRIOR to attempting to register for the next semester. Failure to do so can delay registration as all engineering students are required to be advised prior to registration each semester.
3. All students are assigned a specific registration date (view this date on Testudo under Appointment & Registration Status). Students should meet with their faculty advisor at least two weeks PRIOR to this assigned registration date.
4. Students should be prepared for each meeting with their advisor by monitoring their degree progress at u.achieve (https://uachieve.umd.edu/) (students should know the degree requirements of the college and AE major) and bring an updated copy of their 4-year plan (https://eng.umd.edu/sites/clark.umd.edu/files/resource_documents/Aerospace-4year-plan-Fall-2022_0.pdf), a copy of their unofficial transcript (https://testudo.umd.edu/), and a list of courses they plan to take the following semester.
5. While the advisor is there to provide guidance and structure, students are ultimately responsible for fulfilling their degree requirements and graduating in a timely matter. These responsibilities include making decisions about their class schedule, whether or not to pursue specific educational options, which GENED electives to take, and understanding and adhering to university policies as well as the Academic Policies (https://eng.umd.edu/advising/academic-policies/) of the Clark School.

6. Any concerns you are not able to discuss with your advisor, you may discuss with Dr. Robert Sanner (https://aero.umd.edu/clark/faculty/63/Robert-M-Sanner/) (Undergraduate Program Director), or Dr. Aileen Hentz (https://aero.umd.edu/clark/staff/865/Aileen-Hentz/) (Program Director, Student Services). General advising-related inquiries can be directed to aero_ugrad@umd.edu. If need be, you may also talk with an advisor in the Clark School's Engineering Academic Services Office (https://eng.umd.edu/advising/) located at 1131 Glenn L. Martin Hall, 301-405-9973.

# OPPORTUNITIES

## Undergraduate Research Experiences

Students can be employed and perform research in any of the department's research labs, centers, or facilities. Participation in an on- or off-campus internship, co-op, or other experiential learning opportunity is strongly encouraged. See the aerospace engineering undergraduate studies staff for information on performing research in a department lab and contact the Engineering Career Services (https://eng.umd.edu/careers/) office for assistance in obtaining off campus positions or experiences.

## Honors Program

The Aerospace Engineering Honors Program at the University of Maryland provides a rigorous and comprehensive education for a career in technical leadership and scientific or engineering research. Honors coursework encompasses the required curriculum for all University of Maryland Aerospace Engineering students at an advanced level.

At the end of each academic year, aerospace students are invited to register for honors courses based on their University of Maryland cumulative grade point average and progress toward their degree in Aerospace Engineering. Honors sections of ENAE283, ENAE311, ENAE423, and ENAE457 (designated by an 'H' following the course number) are offered as part of this program. Eligible students wishing to pursue the Aerospace Honors citation will complete an honors research project, ENAE398H, which culminates in a scholarly paper and presentation at a professional conference. Students who complete the honors curriculum graduate with Aerospace Honors at the time of commencement.

## Student Societies and Professional Organizations

The department is home to student chapters of the American Institute of Aeronautics and Astronautics, Society for Advancement of Materials and Process Engineering, Sigma Gamma Tau aerospace engineering honors society, and Vertical Flight Society.

## Scholarships and Financial Assistance

The department offers academic scholarships, and recipients are chosen based on merit. All admitted and current students in the department are automatically considered for these awards. No separate application is required. The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Awards and Recognition

The department offers the following awards: Alfred Gessow Academic Achievement Awards for the seniors with the highest overall academic average at graduation; R.M. Rivello Scholarship Award and the Joseph Guthrie Memorial Award for highest overall academic average through the junior year; Chair Award for leadership and service to the department, Sigma Gamma Tau Outstanding Achievement Award for scholarship and service to the student chapter and the department; American Institute of Aeronautics and Astronautics Outstanding Achievement Award for scholarship and service to the student chapter and the department; Women in Aeronautics and Astronautics Outstanding Achievement Award for scholarship and service to the student organization and the department; John D. Anderson Scholarship in Aerospace Engineering to enable a rising senior to engage in summer research under the mentorship of a faculty member.

## Academic Programs and Departmental Facilities

The Aerospace Engineering Department has a number of facilities to support education and research across a range of special areas. The department has subsonic wind tunnels with test cross-sections ranging from 12 inch by 12 inch up to 7.75 feet by 11.00 feet as well as a supersonic tunnel with a 6 inch by 6 inch test section. The department also houses two hypersonic wind tunnels. The high-temperature Ludwieg tube is a medium-scale hypersonic wind tunnel capable of producing air flows with Mach numbers of 6.2 or 8, The shock tunnel is a flexible, smaller-scale facility, able to reproduce flows over a Mach-number ranging from 2 to 6. Flow measurement techniques include particle image velocimetry, particle tracking velocimetry, force/torque measurements, and surface-mounted pressure measurements. There are facilities for composite materials manufacturing, and additive manufacturing, and a range of instrumentation for inspecting composite or metallic structures. There are a several material test machines with capabilities ranging from 100 to 220,000 pounds for static loads and 5,000 pounds for dynamic loads, as well as high speed dynamic shock tables for high *g* loads. The department also has experimental facilities to test helicopter rotors in hover, in forward flight, and in vacuum to isolate inertial loads from aerodynamic loads. There is an anechoic chamber for the investigation of noise generated by aircraft. The neutral buoyancy facility, which investigates the assembly of space structures in a simulated zero gravity environment, is supported by robots and associated controllers. Vacuum chambers are used to investigate new space propulsion technologies as well as the evolution of the surfaces of the Moon and asteroids. There are also many computers and workstations that provide local computing capability and extensive network access to campus mainframes, supercomputing centers, and all the resources of the Internet.

# Aerospace Engineering Major

**Associate Chair & Director of Undergraduate Programs:** Robert Sanner, Ph.D.
**Program Director Student Services:** Aileen Hentz, Ph.D.

The Bachelor of Science in Aerospace Engineering degree program at the University of Maryland is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Aerospace Engineering Program Criteria.

Aerospace engineering concerns processes involved in design, manufacture and operation of aerospace vehicles within and beyond

planetary atmospheres. Vehicles range from helicopters and other vertical takeoff aircraft at the low-speed end of the flight spectrum, to spacecraft traveling thousands of miles per hour during launch, orbit, trans-planetary flight or re-entry at the high-speed end. Between are general aviation and commercial transport aircraft flying at speeds well below and close to the speed of sound, and supersonic transports, fighters and missiles. Although each speed regime and each vehicle poses its special problems, all aerospace vehicles can be addressed by a common set of technical specialties or disciplines.

Sub-disciplines of Aerospace Engineering are: aerodynamics, flight dynamics, propulsion, structures, and design. Aerodynamics addresses the flow of air and associated forces, moments, pressures, and temperature changes. Flight-dynamics addresses the motion of vehicles including trajectories, rotational dynamics, sensors, and control laws required for successful accomplishment of missions. Propulsion addresses the engines that have been devised to convert chemical (and occasionally other forms) energy into useful work to produce the thrust needed to propel aerospace vehicles. Structures addresses material properties, stresses, strains, deflection, and vibration along with manufacturing processes required to produce very light weight and rugged elements needed in aerospace vehicles. Aerospace design addresses the process of synthesizing vehicles and systems to meet defined missions and more general needs. This process draws on information from other sub-disciplines while embodying its own unique elements. The Aerospace Engineering program is designed to provide a firm foundation in various sub-disciplines.

Courses offered by this department may be found under the acronym: ENAE

# Program Educational Objectives

1. Our graduates will be successful in their professional careers, including industry, government service, and academia, in the State of Maryland and beyond.
2. Our graduates will contribute to the creation of useful new products, or the generation of original research, by analyzing and implementing solutions to relevant problems in the component disciplines of Aerospace Engineering.
3. Our graduates will contribute effectively when part of an integrated team, clearly communicating with team members, supervisors, and clients.
4. Our graduates will understand the societal context in which their profession is practiced, and will successfully adapt to future developments in both technology and the employment market.

# Student Learning Outcomes

As a result of completing our undergraduate program, our students should have developed the following skills:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

# REQUIREMENTS

A minimum of 124 credits are required for an Aerospace Engineering degree:

**Freshman Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENES100[1] | 3 | MATH141 | 4 |
| ENAE100 | 1 | PHYS161 | 3 |
| CHEM135 | 3 | ENES102[1] | 3 |
| MATH140 | 4 | ENAE202 | 3 |
| General Education Program Requirements | 3 | General Education Program Requirements | 3 |
| | **14** | | **16** |

**Sophomore Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENES220 | 3 | ENAE200 | 1 |
| ENAE283 | 3 | ENES232 | 3 |
| MATH241 | 4 | MATH246 | 3 |
| PHYS260 & PHYS261 | 4 | MATH461 or 240 | 3-4 |
| ENES200 or ENEE 200 | 3 | PHYS270 & PHYS271 | 4 |
| | | General Education Program Requirements | 3 |
| | **17** | | **17-18** |

**Junior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENAE301 | 3 | ENAE324 | 4 |
| ENAE362 | 3 | ENAE432 | 3 |
| ENAE380 | 3 | General Education Program Requirements | 3 |
| General Education Program Requirements | 3 | General Education Program Requirements | 3 |
| ENAE414 or ENAE 311[2] | 3 | ENAE311 or ENAE 404[3] | 3 |
| | **15** | | **16** |

**Senior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENAE423 | 3 | ENAE464 | 3 |
| General Education Program Requirements | 3 | ENAE Elective[4] | 3 |

| | | | |
|---|---|---|---|
| Complete all 3 courses from one of the following tracks: | 9 | Technical Elective[5] | 3 |
| AERONAUTICAL TRACK | | Select one course based on track:[6] | 3 |
| ENAE403 | | ENAE482 (AERONAUTICAL TRACK) | |
| ENAE455 | | ENAE484 (ASTRONA TRACK) | |
| ENAE481 | | General Education Program Requirements/ Elective[7] | 2-3 |
| ASTRONAUTICAL TRACK | | | |
| ENAE441 | | | |
| ENAE457 | | | |
| ENAE483 | | | |
| | **15** | | **14-15** |

**Total Credits 124-126**

1 Can be taken first or second semester
2 Select ENAE414 for Aeronautical Track, or ENAE311 for Astronautical Track.
3 Select ENAE311 for Aeronautical Track, or ENAE404 for Astronautical Track
4 Only ENAE398H, or an approved 400 level ENAE course not required for the student's specific track, may be used for this elective.
5 One 300/400 level course in Engineering, Mathematics, or Physical Sciences that has been approved for this purpose by the Undergraduate Program Director.
6 Select ENAE482 for Aeronautical Track, or ENAE484 for Astronautical Track
7 Students may take an additional General Education or elective course to help bring them to the 124 credit minimum required to graduate.

## Minimum Degree Requirements

The fulfillment of all department, school, and university requirements. A minimum of 124 credits are required for an Aerospace Engineering degree.

Students must select a track. All courses in either the Aeronautical or Astronautical track must be completed. Students in either track who wish to gain a broader education across the aeronautical or space application areas can take courses required in the other track as electives.

## Academic Benchmarks

Students pursuing the major should review the academic benchmarks established for this program. See: http://4yearplans.umd.edu. Students will be periodically reviewed to insure they are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

## Aerospace Electives

The department offers a range of electives. The following courses have recently been offered as electives for the undergraduate degree:

| Course | Title | Credits |
|---|---|---|
| ENAE398 | Honors Research Project (ENAE398H - Honors Research) | 1-3 |
| ENAE415 | Helicopter Theory | 3 |
| ENAE425 | Mechanics of Composite Structures | 3 |
| ENAE471 | Aircraft Flight Testing | 3 |
| ENAE488 | Topics in Aerospace Engineering (ENAE488B - Intro to Computational Structural Dynamics) | 3 |
| ENAE488 | Topics in Aerospace Engineering (ENAE488M - High Speed Aerodynamics) | 3 |
| ENAE488 | Topics in Aerospace Engineering (ENAE488P - Product Design) | 3 |
| ENAE488 | Topics in Aerospace Engineering (ENAE488R - Hybrid Rocket Design) | 3 |
| ENAE488 | Topics in Aerospace Engineering (ENAE488W - Design of Remotely Piloted Vehicles) | 3 |
| ENAE499 | Elective Research [1] | 3 |

1 Repeatable to 6 credits

## Other Requirements for the Major

See https://academiccatalog.umd.edu/undergraduate/colleges-schools/engineering/ (p. 398) for minimum grade requirements in key prerequisite courses for engineering students. Students should follow the sequence of courses as outlined in the aerospace engineering degree requirements and four-year plan.

# GRADUATION PLANS

Click here (https://eng.umd.edu/advising/four-year-plans/) for roadmaps for graduation plans in the A. James Clark School of Engineering.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Mechatronics Engineering Major

**Program Coordinator**: Anna Moiseeva

Mechatronics Engineering can be concisely described as the combination of mechanical, electrical, and information systems engineering. The Bachelor of Science in Mechatronics Engineering will provide students with a fundamental understanding of mechatronic systems analysis, the knowledge of how these systems are developed and deployed, and the practical experience required to implement mechatronic systems in real-world applications. Graduates of the program are expected to be highly sought after in fields such as aerospace & defense, energy, infrastructure, manufacturing & automation, robotics, and biomedical engineering. In their senior year, students can focus their electives in one of two tracks: Robotics or Autonomous Air Vehicles.

Mechatronics engineers design, develop, and test automated production systems, transportation and vehicle systems, robotics, computer-machine controls, and many other integrated systems. Mechatronics engineers develop new technologies for use in the automotive and aviation industry, advanced manufacturing operations, and often specialize in areas such as robotics, autonomous vehicles, and manufacturing systems.

# Program Educational Objectives

1. Understand and utilize mechatronics component and system integration; tooling and assembly (with respect to digital and analog electrical components and circuits; embedded systems and control; mechanics (statics and dynamics); pneumatic, hydraulic, industrial controls; automation and PLCs);
2. Utilize systems software analysis tools, programming and control systems engineering; connectivity, industrial communication protocols and information security.
3. Design, select, set-up, and calibrate measurement tools, instrumentation and sensors;
4. Troubleshoot a mechatronics system including test and adjust, maintenance or repair;
5. Prepare laboratory reports and systems integration, drawings associated with development, installation, or maintenance of mechatronics components and systems;
6. Become familiar with and use industry codes, specifications, and standards;
7. Employ statistics, quality and continuous improvement techniques, and industrial organization and management
8. Create and present a capstone or integrating experience that illustrates skills acquired in the program applying both technical and non-technical skills in successfully solving industrial mechatronics problems.

# Student Learning Outcomes

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economics factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

# REQUIREMENTS

## Prior Study

Prior to being admitted to the Mechatronics Engineering major, students should have completed the Engineering LEP gateway courses, basic math/science courses, lower-level General Education requirements, and at least 60 applicable degree credits.

| Course | Title | Credits |
|---|---|---|
| ENGL101 | Academic Writing | 3 |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| MATH241 | Calculus III | 4 |
| MATH246 | Differential Equations for Scientists and Engineers | 3 |
| MATH240 | Introduction to Linear Algebra | 4 |
| CHEM135 | General Chemistry for Engineers | 3 |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | 3 |
| PHYS260 | General Physics: Electricity, Magnetism and Thermodynamics | 3 |
| PHYS261 | General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | 1 |
| PHYS270 | General Physics: Waves, Optics, Relativity and Modern Physics | 3 |
| PHYS271 | General Physics: Electrodynamics, Light, Relativity and Modern Physics (Laboratory) | 1 |
| ENES100 | Introduction to Engineering Design | 3 |
| ENES102 | Mechanics I | 3 |
| ENES220 | Mechanics II | 3 |
| ENES232 | Thermodynamics | 3 |
| ENME202 | Computing Fundamentals for Engineers | 3 |
| or ENAE202 | Computing Fundamentals for Engineers | |
| Lower-Level general education requirements or A.A./A.S. degree from a Maryland public institution | | Varies |

## Required Courses

| Course | Title | Credits |
|---|---|---|
| **Required Foundation Courses** | | **54** |
| ENMT301 | Structural Dynamics | 3 |
| ENMT313 | (Real Time Software Systems and Microprocessors) | 3 |
| ENMT322 | Discrete Signal Analysis | 3 |
| ENMT332 | (Classical Control Theory) | 3 |
| ENMT361 | Mechatronics and Controls I (Mechatronics and Controls Lab I) | 3 |
| ENMT362 | (Mechatronics and Controls Lab II) | 3 |
| ENMT372 | (Robotic Systems) | 3 |
| ENMT380 | Intro to Robotics (Intro to Robotics) | 3 |
| ENMT450 | (Robotics Programming) | 3 |
| ENMT471 | (Manufacturing and Automation) | 3 |
| ENMT473 | (Motion Planning for Autonomous Systems) | 3 |
| ENMT477 | (Machine Learning in Mechatronics Engineering) | 3 |
| ENMT483 | (Mechatronic Systems I) | 3 |
| ENGL39X | (Professional Writing) | 3 |
| ENMT484 | (Mechatronic Systems II) | 3 |
| TECHNICAL ELECTIVE | (Any approved 300 or 400 level course) | 3 |
| TECHNICAL ELECTIVE | (Any approved 300 or 400 level course) | 3 |
| PROGRAM ELECTIVE | (Program-Specific Elective) | 3 |
| **Transfer Credits (Consult with academic advisor)** [1] | | **60-90*** |
| **Total Credits** [2] | | **121** |

[1] May vary depending on previous coursework

[2] Students must have a minimum of 120 credits to complete the program

## GRADUATION PLANS

Click here (https://eng.umd.edu/advising/four-year-plans/) for roadmaps for graduation plans in the A. James Clark School of Engineering.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Chemical and Biomolecular Engineering

**A. James Clark School of Engineering**
2113 Chemical and Nuclear Engineering Building
Phone: 301-405-1935
http://chbe.umd.edu

The Department of Chemical and Biomolecular Engineering, established in 1937 at the University of Maryland, provides students with a fundamental understanding of physical, chemical and biological processes and the ability to apply molecular and biomolecular information and methods of discovery into products and the processes by which they are made. Our undergraduate and graduate programs provide the unique interdisciplinary academic foundation and scholarly training needed to address complex engineering problems with an emphasis on the advancing fields of biological engineering and nanotechnology. For information on our accreditation, please follow this link (http://www.chbe.umd.edu/undergraduate/accreditation/).

## PROGRAMS

### Major

- Chemical Engineering Major (p. 409)

## ADVISING

All students choosing Chemical and Biomolecular Engineering as their primary field must see their assigned undergraduate faculty mentor and advisor each semester. Please contact Kathy Gardinier (Lopresti) at 301-405-5888 or lopresti@umd.edu or Amanda Alicea at 301-405-1885 or aalicea@umd.edu for your assigned advisor information.

## OPPORTUNITIES

### Undergraduate Research Experiences

A unique aspect of the department's undergraduate program is its high level of students' participation in cutting-edge research. Approximately half of our students graduate with significant lab experience and most find it to be one of the high points of their undergraduate education.

### Honors Program

The A. James Clark School of Engineering hosts a chapter of the Omega Chi Epsilon National Honor Society for chemical engineering, as well as a chapter of the engineering honor society, Tau Beta Pi.

### Student Societies and Professional Organizations

Students operate a campus student chapter of the professional organization, the American Institute of Chemical Engineers. Omega Chi Episilon is the honorary Chemical Engineering Society. OXE is our Honors Society.

### Scholarships and Financial Assistance

Financial assistance based upon need is available through the Office of Student Financial Aid (https://www.financialaid.umd.edu/). A number of scholarships are available through the A. James Clark School of Engineering (https://eng.umd.edu/scholarships/). The department offers opportunities for research and other part-time employment.

### Awards and Recognition

Annual awards are given to recognize scholarship and outstanding service to the department, college, and university.

# Chemical Engineering Major

**Program Director:** Ganesh Sriram, Ph.D.

The Bachelor of Science in Chemical Engineering degree program at the University of Maryland is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Chemical, Biochemical, and Biomolecular Program Criteria.

Students in the Department of Chemical and Biomolecular Engineering at the University of Maryland learn to use a combination of mathematical, physical, chemical, and biological science concepts within a rigorous engineering design framework, graduating with a unique set of skills highly valued by a wide range of employers in industry, academia, and the government. The wide breadth of this profession and the Department's unique strengths in nanotechnology and biotechnology prepare our students for outstanding careers.

Because of the wide range of ultimate applications, the chemical engineer finds interesting and diverse career opportunities in such varied fields as chemical (inorganic and organic), food processing and manufacturing, metallurgical, polymer, energy conversion, environmental engineering, petroleum (refining, production, or petrochemical), and pharmaceutical industries. Additional opportunities are presented by the research and development activities of many public and private research institutes and all government agencies. Our graduates have taken jobs with companies like DuPont, ExxonMobil, Proctor & Gamble, the Food and Drug Administration, and the Department of Defense. On top of all the options and opportunities, chemical and biomolecular engineers have traditionally ranked at or near the top of starting salaries among all of the engineering professions.

Courses offered by this department may be found under the CHBE acronym.

## Program Educational Objectives

The objectives of the Chemical Engineering degree program are to produce graduates who:

- Succeed in professional chemical engineering practice and in the pursuit of advanced degrees.

- Excel in traditional chemical engineering careers and diverse areas such as biotechnology, nanotechnology, medicine, law or business.
- Adapt to new technologies, with a strong ethical foundation that serves them throughout their careers.

## Student Learning Outcomes

Students are expected to fully engage with the curriculum and the opportunities presented for learning and research. Having completed the degree program, students should have acquired the following knowledge and skills:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

# REQUIREMENTS

**Important:** This section contains requirements for incoming freshman or transfer students entering the B.S. program in Chemical and Biomolecular Engineering Fall 2018 and later. For students entering the program before Fall 2018 see requirements here (http://www.chbe.umd.edu/undergraduate/fall2010tospring2012/program/).

The undergraduate program is designed to be completed in four years. It is important to follow the sample program as closely as possible, as nearly all CHBE classes are offered only once a year. All Chemical and Biomolecular Engineering students must participate in an advising session prior to registering each semester. Students are assigned a faculty advisor at the start of their first semester in the major. Questions about the undergraduate program may be sent to Kathy Lopresti at lopresti@umd.edu or Amanda Alicea at aalicea@umd.edu.

Courses appearing in bold are offered by the Department of Chemical and Biomolecular Engineering.

**Freshman Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENES100 | 3 | ENGL101 | 3 |
| MATH140 | 4 | MATH141 | 4 |
| CHEM135 | 3 | PHYS161 | 3 |
| CHEM136 | 1 | BIOE120 | 3 |
| General Education | 3 | CHBE101[1] | 3 |
| | **14** | | **16** |

**Sophomore Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| MATH241 | 4 | MATH246 | 3 |
| PHYS260 | 3 | PHYS270 | 3 |
| PHYS261 | 1 | PHYS271 | 1 |
| CHEM231 | 3 | CHEM241 | 3 |
| CHEM232 | 1 | CHEM242 | 1 |
| CHBE250[1] | 3 | CHBE302[1] | 3 |
| CHBE301[1] | 3 | General Education | 3 |
| | **18** | | **17** |

**Junior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| CHBE410[1] | 3 | BCHM461 or 463[If BCHM 461 is taken, it must be followed by BCHM 462, which can be counted as an out-of-major technical elective] | 3 |
| CHBE422[1] | 3 | Select one of the following: | 3 |
| CHBE440[1] | 3 | CHBE457[1] | |
| CHEM272 | 2 | ENMA300 | |
| General Education | 3 | CHBE424[1] | 3 |
| Professional Writing | 3 | CHBE426[1] | 3 |
| | | CHBE333[1] | 1 |
| | | General Education | 3 |
| | **17** | | **16** |

**Senior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| CHBE437[1] | 3 | CHBE446[1] | 3 |
| CHBE442[1] | 3 | Technical Elective[2] | 3 |
| CHBE444[1] | 3 | Technical Elective[2] | 3 |
| Technical Elective[2] | 3 | General Education | 3 |
| General Education | 3 | General Education | 3 |
| | **15** | | **15** |

**Total Credits 128**

1 Offered by the Department of Chemical and Biomolecular Engineering
2 Technical Elective list of approved courses: http://www.chbe.umd.edu/undergraduate/current (http://www.chbe.umd.edu/undergraduate/current/)

**Degree Credits:** 128 credits and fulfillment of all departmental, college, and university requirements with a cumulative grade point average of 2.0.

# GRADUATION PLANS

Click here (https://eng.umd.edu/advising/four-year-plans/) for roadmaps for graduation plans in the A. James Clark School of Engineering.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Civil and Environmental Engineering

**A. James Clark School of Engineering**
1173 Glenn L. Martin Hall
Phone: 301-405-7768
http://cee.umd.edu

Civil and environmental engineers are problem solvers, innovators, and global leaders. Their work is all around you—the buildings we live in, the roads we travel on, the systems that treat our water, the pollution controls that protect our health, and the strategies that help us plan and recover from disasters. Stronger global communities, economies, and ecosystems depend on dedicated civil and environmental engineers.

## PROGRAMS

### Major

- Civil Engineering Major (p. 411)

### Minors

- Construction Project Management Minor (ENGR) (p. 414)
- Project Management Minor (p. 415)

## ADVISING

All Civil and Environmental Engineering majors are advised by the following department faculty and staff:

1. Dr. Natasha Andrade, Associate Chair for Undergraduate Programs, 0160 Glenn L. Martin Hall, nandrade@umd.edu, 301-405-1171.
2. Alan Santos, Director of Undergraduate Student Services, 0147C, Glenn L. Martin Hall, asantos@umd.edu, 301-405-1977.
3. Dr. Isabella Cooper, Academic Advisor, 0147E, Glenn L. Martin Hall, icooper@umd.edu, 301-405-0431.

## OPPORTUNITIES

### Undergraduate Research Experiences

Department faculty frequently have research opportunities for undergraduate students. Students are encouraged to contact faculty members whose research specialties are of interest. For further information, students are encouraged to contact the department's advising staff (https://cee.umd.edu/undergraduate/current-students/advising-support/).

### Internships

Career fairs are organized regularly throughout the academic year by the American Society of Civil Engineers (ASCE) (http://www.ascemd.org/) and the Chi Epsilon student chapters, and the Engineering Career Services Office (https://eng.umd.edu/careers/).

### Study Abroad Programs

The department offers three short-term programs with a focus on sustainability and infrastructure. These courses count as one of the upper tech electives in the civil engineering major and are approved tech electives for the sustainability minor. http://cee.umd.edu/undergraduate/current-students/study-abroad/.

### Co-op Programs

Several excellent co-op opportunities are available for Civil and Environmental Engineering students. See the A. James Clark School of Engineering's Engineering Career Services Office (https://eng.umd.edu/careers/students/internships/) for more information on these opportunities.

### Honors Program

The Clark School offers an Engineering Honors Program (https://eng.umd.edu/engineering-honors-program/) that provides eligible students the opportunity to pursue an enriched program of studies that will broaden their perspectives and increase the depth of their knowledge.

### Student Societies and Professional Organizations

- American Society of Civil Engineers
- Chi Epsilon Civil Engineering Honor Society (by invitation)
- Engineers Without Borders
- ITS Student Chapter

### Scholarships and Financial Assistance

The Department of Civil and Environmental Engineering awards a number of academic scholarships. These awards are designated primarily for junior and senior students and are listed on the department website at http://cee.umd.edu/undergraduate/current-students/scholarships/.

The department evaluates scholarship applications each year. See the School of Engineering website (https://eng.umd.edu/scholarships/) for further information and application instructions on this scholarship application.

### Awards and Recognition

The Department of Civil and Environmental Engineering assigns awards to students for excellence in academics, leadership, and service. The awards are listed on the department website: http://cee.umd.edu/undergraduate/current-students/awards/.

## Civil Engineering Major

**Program Director:** Natasha Andrade, Ph.D.

The Bachelor of Science in Civil Engineering degree program at the University of Maryland is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Civil Engineering Program Criteria.

The Bachelor of Science in Civil Engineering requires a total of 122 credit hours with an emphasis on basic science (mathematics, chemistry, and physics), engineering science (mechanics of materials, statics, and dynamics), and basic civil and environmental engineering core courses (computations, materials, fluid mechanics, probability & statistics, and

Geographic Information Systems). By the Junior year, each student chooses one of three tracks: Geotechnical/Structural, Environmental/Water Resources, or Transportation/Project Management. Each track specifies junior- and senior-level requirements. All three tracks include technical electives that may be selected from a combination of the six Civil Engineering specialties and other approved courses (the six specialty areas are: Environmental, Geotechnical, Project Management, Structural, Transportation, and Water Resources). The curriculum provides a sensible blend of required courses and electives, permitting students to pursue their interests without the risk of overspecialization.

## Admission to the Major

See the entrance requirements for the A. James Clark School of Engineering (p. 398) in the Colleges and Schools section of this catalog.

## Mission

The mission of the Department of Civil and Environmental Engineering is threefold:

1. Provide a high quality, challenging education that encompasses breadth and depth; and prepare graduates to be proficient in both analysis and synthesis facets of civil engineering design;
2. Maintain a strong research program that is recognized for excellence in major areas of civil and environmental engineering;
3. Provide service to the university, the civil engineering profession, and the community at large.

The department provides an educational program of basic and specialized engineering knowledge necessary for its graduates to be proficient in recognized specialties of civil engineering. This preparation provides graduates with the tools needed for successful practice in the period following graduation. In addition to general and technical education, the educational program stresses professional and ethical responsibilities, an awareness of societal issues, and the need for life-long learning.

The department contributes to the advancement of knowledge through research on important engineering problems. The research results are communicated through recognized channels of knowledge dissemination.

The department serves the needs of the community by emphasizing global and societal issues. The department addresses these issues through university and professional channels and contributes to their solutions.

## Program Educational Objectives

The Department of Civil and Environmental Engineering has established the following program educational objectives:

- To understand, apply and develop fundamental knowledge in science, technology, engineering and mathematics.
- To attain advanced qualification in both specialization and breadth.
- To understand and apply business sensitive criteria in meeting professional responsibilities.
- To incorporate societal sensitive criteria into professional decisions.
- To develop forward-thinking attitudes that enhance lifelong learning, diversity, equity, inclusion, communication, and exemplary practice.

## Student Learning Outcomes

In addition to ensuring the technical competency of all graduates in the broad discipline areas of civil engineering, the department must encourage the development of skills and abilities that will enhance the marketability of its graduates and provide them with the best possible opportunity for success in the workplace. As a result, the faculty has agreed to develop the following abilities and skills within each graduate and has approved the following Student Outcomes:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

# REQUIREMENTS

The Department offers a program of study leading to an ABET-accredited Bachelor of Science in Civil Engineering (BSCE) degree. Each student specializes in one of three tracks: Geotechnical/Structural, Environmental/Water Resources, or Transportation/Project Management. A total of 122 credit hours are required for a BSCE degree with an emphasis in basic science (mathematics, chemistry, and physics), engineering science (mechanics of materials, statics, and dynamics), basic civil and environmental engineering courses; required courses in the selected track; technical electives; and a senior capstone design course. The curriculum provides a sensible blend of required courses and electives, permitting students to pursue their interests without the risk of overspecialization.

**Freshman Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| MATH140 | 4 | MATH141 | 4 |
| CHEM135 | 3 | ENES102 | 3 |
| ENES100 | 3 | PHYS161 | 3 |
| ENGL101 | 3 | General Education Program Requirements | 3 |
| ENCE100 | 1 | General Education Program Requirements | 3 |
| | **14** | | **16** |

**Sophomore Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| MATH241 | 4 | MATH246 | 3 |
| ENES220 | 3 | ENCE201 | 3 |
| ENCE200 | 3 | ENCE215 | 3 |
| PHYS261 | 1 | ENCE305 | 3 |
| PHYS260 | 3 | ENES200 or ENEE 200 | 3 |
| Science requirement | 3 | | |
| | **17** | | **15** |

**Junior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| Select one of the following tracks: | 15 | Continue selected track | 15 |
| Geotechnical and Structural Engineering | | | |
| Transportation/Project Management | | | |
| Environmental and Water Resources Engineering | | | |
| | **15** | | **15** |

**Senior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| Continue selected track | 15 | Continue selected track | 15 |
| | **15** | | **15** |

**Total Credits 122**

# Tracks

## Geotechnical & Structural Track

**Junior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENCE300 | 3 | ENES221 | 3 |
| ENCE302 | 3 | Professional Writing | 3 |
| ENCE353 | 3 | ENCE340 | 3 |
| ENCE360 | 3 | ENCE Breadth Electives | 3 |
| ENCE Breadth Electives | 3 | General Education Program Requirements | 3 |
| | **15** | | **15** |

**Senior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENCE320 | 3 | ENCE444 | 3 |
| ENCE454 | 3 | ENCE467 | 2 |
| ENCE441 | 3 | ENCE Electives | 3 |
| ENCE465 | 1 | Tech Electives | 3 |
| General Education Program Requirements | 6 | General Education Program Requirements | 3 |
| | **16** | | **14** |

**Total Credits 60**

## Transportation/Project Management Track

**Junior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENCE300 | 3 | ENCE320 | 3 |
| ENCE302 | 3 | ENCE472 | 3 |
| ENCE360 | 3 | Professional Writing | 3 |
| ENCE370 | 3 | ENCE Breadth Electives | 3 |
| ENCE Breadth Electives | 3 | General Education Program Requirements | 3 |
| | **15** | | **15** |

**Senior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENCE423 | 3 | ENCE402 | 3 |
| ENCE470 | 3 | ENCE422 | 3 |
| Tech Electives | 3 | ENCE Electives | 3 |
| General Education Program Requirements | 6 | ENCE467 | 2 |
| ENCE465 | 1 | General Education Program Requirements | 3 |
| | **16** | | **14** |

**Total Credits 60**

## Environmental/Water Resources Track

**Junior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENCE302 | 3 | ENCE300 | 3 |
| ENCE310 | 3 | ENCE431 | 3 |
| ENCE360 | 3 | Professional Writing | 3 |
| ENCE Breadth Electives | 3 | ENCE Breadth Electives | 3 |
| ENCE205 | 3 | General Education Program Requirements | 3 |
| | **15** | | **15** |

**Senior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENCE411 | 3 | ENCE422 | 3 |
| ENCE432 | 3 | ENCE412 | 3 |
| General Education Program Requirements | 6 | ENCE Electives | 3 |
| ENCE465 | 1 | General Education Program Requirements | 3 |
| Tech Electives | 3 | ENCE467 | 2 |
| | **16** | | **14** |

**Total Credits 60**

Minimum Degree Requirements: 122 credits and the fulfillment of all departmental, school, and university requirements with a cumulative grade point average of at least 2.0. Additional semester credits will be

involved to the extent that courses carrying more than three credits are selected.

# ENCE Electives

- 3XX, 4XX or 6XX. At least two must be ENCE courses
- No more than one ENCE489
- No more than 3 total ENCE with the same first two numbers

# TECH Electives

Students can choose from a variety of courses that are approved as technical electives. Moreover, if a student chooses a course that is not pre-approved, the student can request an evaluation by the Committee of Undergraduate Education for approval.

# Breadth Electives

## Geotechnical & Structural Track

Include two electives from List A or List B:

### List A

| Course | Title | Credits |
|---|---|---|
| ENCE370 | Introduction to Transportation Engineering and Planning | 3 |
| ENCE402 | Simulation and Design of Experiments for Engineers | 3 |
| ENCE422 | Project Cost Accounting and Economics | 3 |
| ENCE423 | Project Planning, Estimating & Scheduling | 3 |
| ENCE470 | Highway Engineering | 3 |
| ENCE472 | Transportation Engineering | 3 |

### List B

| Course | Title | Credits |
|---|---|---|
| ENCE310 | Introduction to Environmental Engineering | 3 |
| ENCE411 | Environmental Engineering Science | 3 |
| ENCE412 | Environmental Engineering Unit Operations | 3 |
| ENCE431 | Hydrologic Engineering | 3 |
| ENCE432 | Ground Water Hydrology | 3 |

## Transportation/Project Management Track

Include two electives from List A or List B:

### List A

| Course | Title | Credits |
|---|---|---|
| ENCE340 | Fundamentals of Geotechnical Engineering | 3 |
| ENCE353 | Introduction to Structural Analysis | 3 |
| ENCE441 | Foundation Design | 3 |
| ENCE444 | Experimental Methods in Geotechnical Structural Engineering | 3 |
| ENCE454 | Design of Concrete Structures | 3 |

### List B

| Course | Title | Credits |
|---|---|---|
| ENCE310 | Introduction to Environmental Engineering | 3 |
| ENCE411 | Environmental Engineering Science | 3 |
| ENCE412 | Environmental Engineering Unit Operations | 3 |
| ENCE431 | Hydrologic Engineering | 3 |
| ENCE432 | Ground Water Hydrology | 3 |

## Environmental/Water Resources Track

Include two electives from List A or List B:

### List A

| Course | Title | Credits |
|---|---|---|
| ENCE340 | Fundamentals of Geotechnical Engineering | 3 |
| ENCE353 | Introduction to Structural Analysis | 3 |
| ENCE441 | Foundation Design | 3 |
| ENCE444 | Experimental Methods in Geotechnical Structural Engineering | 3 |
| ENCE454 | Design of Concrete Structures | 3 |

### List B

| Course | Title | Credits |
|---|---|---|
| ENCE320 | Introduction to Project Management | 3 |
| ENCE370 | Introduction to Transportation Engineering and Planning | 3 |
| ENCE402 | Simulation and Design of Experiments for Engineers | 3 |
| ENCE423 | Project Planning, Estimating & Scheduling | 3 |
| ENCE470 | Highway Engineering | 3 |
| ENCE472 | Transportation Engineering | 3 |

# GRADUATION PLANS

Click here (https://eng.umd.edu/advising/four-year-plans/) for roadmaps for graduation plans in the A. James Clark School of Engineering.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Construction Project Management Minor (ENGR)

**A. James Clark School of Engineering**
1131 Glenn L. Martin Hall
Phone: 301-405-0234

**School of Architecture, Planning and Preservation**
Architecture Building
Phone: 301-405-8000

**Program Director:** Qingbin Cui, Ph.D.

A minor in Construction Project Management will prepare students for employment in one of the many careers related to the built environment, such as project management, architectural engineering, design and commercial construction. Students will learn how to manage multiple phases of operation and management in the construction process including building information modeling, cost estimating, project scheduling, construction financing and planning. The Construction Project Management minor is ideal for students in Architecture, Engineering and similar fields. This minor is designed to give students

a competitive advantage when applying for a job in the construction industry.

## Admission Requirements

This minor is only available to undergraduate students in the A. James Clark School of Engineering and the School of Architecture, Planning and Preservation who have earned at least 60 credit hours (Junior standing), and have a cumulative University of Maryland GPA of 3.0 or higher.

## Application Process

Interested students must complete an application to the minor, and obtain approval from their major advisor and the CPM minor advisor for their school. Students can obtain an application from their major advisor or go to: http://pm.umd.edu/program/cpm-minor/ for an online copy.

For more information about this minor, please contact the advisor associated with your College/School:

- Engineering – CPM Minor Advisor: Dr. Qingbin Cui, cui@umd.edu
- Architecture – CPM Minor Advisor: Maoqing Wang, mwang110@umd.edu

## REQUIREMENTS

The Minor in Construction Project Management consists of 15 credit hours. Students must complete 5 of the following courses with a grade of "C-" or better and have a minimum 2.0 GPA for the minor. Students must also complete an internship in the construction industry.

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| ENCE325 | Introduction to Construction Project Management [1] | 3 |
| ENCE423 | Project Planning, Estimating & Scheduling [1] | 3 |
| ENCE424 | Communication for Project Managers [2] | 3 |
| ENCE426 | Construction Documentation and BIM Applications in Engineering and Construction [1] | 3 |
| or ARCH472 | Building Information Modeling Communication and Collaboration | |
| **Electives** | | |
| Select one of the following: | | 3 |
| ENCE420 | Selection and Utilization of Construction Equipment [3] | |
| ENCE421 | Legal Aspects of Architectural and Engineering Practice [4] | |
| ENCE422 | Project Cost Accounting and Economics [2] | |
| ARCH430 | Measuring Sustainability in Architecture [3] | |
| ARCH462 | Methods & Materials of Building Construction [3] | |
| ARCH467 | Integrated Project Delivery [3] | |
| **Total Credits** | | **15** |

1 Course offered in Fall and Spring
2 Course offered in Fall, Spring and online in the Summer
3 Course offered in the Fall
4 Course offered in the Spring

All courses are also offered online in the summer session. Please see the Schedule of Classes (https://app.testudo.umd.edu/soc/).

# Project Management Minor

**Civil and Environmental Engineering (ENCE)**
1173 Engineering Classroom Building
Phone: 301-405-7768
http://pm.umd.edu/program/undergraduate-minor-in-project-management/

**Program Director:** Qingbin Cui, Ph.D.

The Minor in Project Management is open to all students in the A.J. Clark School of Engineering or the School of Architecture, Planning & Preservation that have earned at least 60 credit hours and have a GPA of 3.0 or higher.

A basic understanding of project management is becoming increasingly important for engineers. Such knowledge enables them to contribute immediately to employers, and to advance their careers. In addition to a strong engineering background, there is significant need for engineers to understand the fundamentals of managing projects in order to effectively participate as members of project teams. Students who successfully complete minor requirements will receive a notation on their official transcript.

## REQUIREMENTS

A total of 15 credits are required. All courses for the minor must be passed with a grade of "C-" or better.

| Course | Title | Credits |
|---|---|---|
| **Core Courses** | | |
| ENCE320 | Introduction to Project Management | 3 |
| ENCE422 | Project Cost Accounting and Economics | 3 |
| ENCE423 | Project Planning, Estimating & Scheduling | 3 |
| ENCE424 | Communication for Project Managers | 3 |
| **Elective Courses** | | |
| ENCE421 | Legal Aspects of Architectural and Engineering Practice | 3 |
| or ENCE426 | Construction Documentation and BIM Applications in Engineering and Construction | |
| **Total Credits** | | **15** |

# Electrical and Computer Engineering

**A. James Clark School of Engineering**
2426 A.V. Williams Building
Phone: 301-405-3685
eceadvise@umd.edu
http://ece.umd.edu

The Department of Electrical and Computer Engineering (ECE) at the University of Maryland, College Park offers one of the strongest and most highly-ranked programs in the nation. Led by 94 full-time and affiliate faculty members, the research programs within the department cover a wide spectrum of activities in the areas of:

- Machine Learning
- Quantum Computing
- Wireless Communications
- Robotics
- Cybersecurity

- Microelectronics
- Neuroscience
- Computer Architecture
- Embedded Systems
- Optics and Photonics
- Bioelectronics
- Power Electronics

# PROGRAMS

## Majors

- Computer Engineering Major (p. 417)
- Cyber-Physical Systems Engineering Major (p. 419)
- Electrical Engineering Major (p. 421)

## Minor

- Computer Engineering Minor (p. 419)
- Quantum Science and Engineering Minor (p. 423)

# ADVISING

All ECE students have mandatory advising every semester, provided by the professional advising staff of the ECE Undergraduate Studies Office. Departmental permission is required in order for students to register and for all courses in the major. The Department's Undergraduate Studies Office (2426 A.V. Williams Building, 301-405-3685) is the primary point of contact for undergraduates with advising questions. Detailed curriculum requirements, registration information, and advising and mentoring procedures can be found on the ECE Undergraduate Advising website: http://ece.umd.edu/undergrad/advising/.

# OPPORTUNITIES

## Undergraduate Research Experiences

The Department of Electrical and Computer Engineering is affiliated with more than 40 specialized laboratories, supporting activities including: speech and image processing, high performance systems, mobile computing and multimedia, communication networks, robotics, control systems, neural systems, systems integration, VLSI design and testing, experimental software engineering, semiconductor materials and devices, photonics, fiber optics, ion beam lithography, real-time systems, human- computer interaction, and virtual reality. Undergraduate students are encouraged to engage in research at some point during their education. Active participation in research not only allows students to apply what they have learned in class, it also gives them greater insight into a specific area within ECE and an appreciation for the subtleties and difficulties associated with the production of knowledge and fundamental new applications. Research experience also prepares students for the demands of graduate school and the work force. Information on participating in undergraduate research can be found at https://ece.umd.edu/undergraduate/research/488/499/499L (https://ece.umd.edu/undergraduate/research/488/499/499L/).

## Internships

Information on internships can be found at http://eng.umd.edu/careers/. Other internships are advertised by the ECE Department's Office of External Relations and Office of Undergraduate Studies.

## Co-op Programs

Participation in a Cooperative Education Program or internship with private industry or a government agency is strongly encouraged. See the A. James Clark School of Engineering catalog entry for details.

## Job Opportunities

Electrical and computer engineers have been uniquely responsible for developing many of the innovations that have brought us modern life. Today, they are urgently needed to help solve a variety of global problems, including challenges related to energy, communications, health care, climate change, and national security. They remain at the forefront of cutting edge developments and innovations in nanotechnology, robotics, wireless communications, and more. Electrical and computer engineers also have wide ranging employment opportunities in fields including machine learning, quantum computing, cybersecurity, neuroscience, microelectronics, communications and signal processing, power systems, and computer architecture. Specific jobs include developing fiber optic technology, lasers for biomedical applications, software for robots, electronic weapons systems, advanced wireless networks, and neuron-like sensors for various applications.

## Honors Program

The Electrical and Computer Engineering Honors Program (http://ece.umd.edu/undergrad/honors/) is intended to provide a more challenging and rewarding undergraduate experience for students pursuing the baccalaureate in Electrical or Computer Engineering. Please visit the ECE Honors website (https://ece.umd.edu/undergraduate/current-students/honors-program/) for program course requirements. Students completing all program requirements with a "B" average (3.0 on a 4.0 scale) and a cumulative GPA of 3.5 for all undergraduate work will have their participation noted on their B.S. diploma. Students may opt into the program at any time, and will work with the ECE undergraduate office to ensure they have completed the appropriate requirements.

## Student GROUPS and Professional Organizations

The ECE Department has an active student chapter of the Institute of Electrical and Electronics Engineers (IEEE). Information and instructions for joining can be found on their website: http://terplink.umd.edu/organization/ieee-umd/.

The ECE Department also offers the ECE Peer Mentoring Program. ECE peer mentors provide insider knowledge about the department and college as well as share helpful resources to ensure academic and social success. The ECE Peer Mentor Program offers various programming throughout the year including workshops, guest speakers, and social events to build community within ECE. More information about the ECE Peer Mentoring Program can be found at http://ece.umd.edu/undergraduate/peer-mentoring/.

## Scholarships and Financial Assistance

Several scholarships are administered through the department and many others through the Clark School of Engineering. To be considered for these awards, students must submit an application by May 31st of each year for the following academic year. For more information visit: http://eng.umd.edu/scholarships/.

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs

and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Departmental Awards

Each spring, the ECE Department recognizes its talented and committed students with departmental awards. The ECE Chair's Award is presented to graduating seniors in Electrical and Computer Engineering for outstanding academic performance. The ECE Outstanding Academic Performance Award is presented to a junior for demonstrating outstanding academic excellence. The ECE Service Award is presented to a graduating senior(s) who has demonstrated exceptional leadership and service to both their fellow students and the department.

# Computer Engineering Major

**Program Director:** Donald Yeung, Ph.D.

The Bachelor of Science in Computer Engineering degree program at the University of Maryland is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s) and Similarly Named Engineering Programs.

The computer engineering major combines the strengths of both the Department of Electrical and Computer Engineering and the Department of Computer Science to prepare students for careers in the computer industry. The program encompasses the study of hardware, software, and systems questions that arise in the design, development, and application of computers and embedded systems. Specifically, computer engineering students will have a knowledge of hardware systems (electrical networks, electronics, and VLSI); a knowledge of software systems (algorithms, data structures, and operating systems); and a knowledge of how these two domains interact (digital logic, signal and system theory, computer architecture and performance analysis). Computer Engineering students will learn about everything that goes into digital and computing systems, from solid state physics to CMOS VLSI design, to computer architecture to programming, and from operating systems to compiler and language theory. Courses offered by this department may be found under the following acronym: ENEE and CMSC.

## Program Educational Objectives

Broadly stated, the **Program Educational Objectives (PEOs)** for the undergraduate major in computer engineering pertain to the accomplishments and performance of our students within a few years from graduation. These objectives are determined in consultation with the various constituencies of the computer engineering program and agreed upon and approved by a consensus of the faculty.

Within a few years from graduation, a graduate of computer engineering will have engaged in professional development, and will have attained any of the following program educational objectives:

1. Achieve advanced technical expertise and/or advance to a leadership position in industry or government.
2. Earn a graduate degree from a respected graduate program in computer engineering, electrical engineering, or related field.
3. Become an innovator and/or entrepreneur in computer engineering, electrical engineering, or related space
4. Use their professional knowledge, skills and abilities, as well as their sense of ethical responsibility, to make a positive impact on societal and environmental concerns and/or to improve the climate for diversity, equity and inclusiveness within the profession

## Student Learning Outcomes

A comprehensive set of Student Learning Outcomes (SLOs) has been derived from the Program Educational Objectives (PEOs). These SLOs comprise the knowledge and skills all Computer Engineering students are expected to possess by the time they graduate so the PEOs can be accomplished. The SLOs are:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

# REQUIREMENTS

As in all engineering degrees, the student starts out with a core curriculum in mathematics and basic science. Subsequent years of study involve courses covering a balanced mixture of hardware, software, hardware-software trade-offs, and basic modeling techniques used to represent the computing process. Courses covering algorithms, data structures, digital systems, computer organization and architecture, software and hardware design and testing, operating systems, and programming languages will be included. Elective courses must include electrical engineering and computer science courses and technical courses outside the departments. ***Students must earn a grade of "C-" or higher in all engineering, mathematics, and science courses as well as the prerequisites for these courses.*** A sample program is shown below.

**Freshman Year**

| Semester 1 | Credits | Semester 2 | Credits |
|---|---|---|---|
| CHEM135 | 3 | ENES100[1] | 3 |
| CMSC131 | 4 | CMSC132[2] | 4 |
| ENEE101[1] | 3 | PHYS161 | 3 |
| MATH140 | 4 | MATH141 | 4 |
| General Education[3] | 3 | General Education[3] | 3 |
| | **17** | | **17** |

**Sophomore Year**

| Semester 1 | Credits | Semester 2 | Credits |
|---|---|---|---|
| ENEE244 | 3 | ENEE222 | 4 |
| PHYS260 & PHYS261 | 4 | ENEE205 | 4 |
| ENEE290 | 4 | CMSC216 | 4 |

| | | | |
|---|---|---|---|
| CMSC250 | 4 | ENEE245 | 2 |
| General Education[3] | 3 | General Education[3] | 3 |
| | 18 | | 17 |

**Junior Year**

| Semester 1 | Credits | Semester 2 | Credits |
|---|---|---|---|
| ENEE200 | 3 | ENEE324 or STAT 400[4] | 3 |
| ENEE350 | 3 | ENEE446 | 3 |
| ENEE304 or 322[5] | 3 | CMSC351 | 3 |
| CMSC330 | 3 | Major Technical Elective Category A | 3 |
| Major Technical Elective Category A | 3 | General Education[3] | 3 |
| | 15 | | 15 |

**Senior Year**

| Semester 1 | Credits | Semester 2 | Credits |
|---|---|---|---|
| Major Technical Elective Category B | 3 | Major Technical Elective Category D | 2 |
| Major Technical Elective Category C | 3 | Major Technical Elective Category E | 3 |
| Major Technical Elective Category C | 3 | CMSC412 or ENEE 447 | 4 |
| Major Technical Elective Category F | 3 | Major Technical Elective | 3 |
| General Education[3] | 3 | Professional Writing Requirement | 3 |
| | 15 | | 15 |

**Total Credits 129**

1. ENEE101 and ENES100 cannot be taken in the same semester. Students may take these courses consecutively within their first year in the order of choice.
2. Students are required to complete CMSC131 prior to taking CMSC132 unless they have AP credit for CMSC131 (5 on the JAVA A exam, 4 or 5 on the JAVA AB) or have satisfactorily passed the Computer Science exemption exam.
3. Note: Please see www.4yearplans.umd.edu (http://www.4yearplans.umd.edu).
4. Some category C, D, and E courses require ENEE324 as a prerequisite.
5. Course selection will determine courses taken in Category C, D, and E courses.

Technical Elective Requirements

Computer Engineering Majors are required to complete 26 credits of computer engineering technical electives. These electives must be selected from the six following categories, each of which has minimum credit requirements.

| Category | Electives | Credits |
|---|---|---|
| Category A | Mathematics and Basic Science Electives | minimum of 6 |
| Category B | Computer Science Theory and Applications | minimum of 3 |
| Category C | Electrical Engineering Theory and Applications | minimum of 6 |
| Category D | Advanced Laboratory | minimum of 2 |
| Category E | Capstone Design | minimum of 3 |
| Category F | General Technical Electives | minimum of 3 |

***Please read carefully, and make a note of the following special cases and other items:***

1. General Technical Electives. The 3 credits may be any upper-level course (300 level or higher) from the math, engineering, and basic science disciplines whose courses start with the following prefixes and who do not appear on the list of unacceptable courses available from the Undergraduate Studies Office: AMSC, BCHM, BIOE, BSCI, CHEM, CMSC, ENAE, ENCE, ENCH, ENEE, ENES, ENFP, ENMA, ENME, ENNU, ENRE, MATH, PHYS, and STAT. The most up-to-date list of approved and unacceptable courses will always be available from the Undergraduate Studies Office and on the ECE website. The 3 credits may be any upper-level course (300 level or higher) whose prefix is not given in the list above, assuming that the student:
   a. completes the application to allow the course to count as a general elective,
   b. demonstrates how this course complements the student's professional goals, and
   c. receives signed approval of the Associate Chair for Undergraduate Education.
2. Additional Computer Engineering Technical Electives (3 Credits). In order to meet the required 26 credits of Computer Engineering Technical Electives, students may take an additional course from Categories A-F. The additional Technical Elective Course cannot be a course already used to satisfy any of the categories. Students opting to take a second Category D or E course should note the registration restrictions the ECE Department has on second advanced lab and/or capstone design courses (see your advisor for details).
3. Two credits of ENEE499 may be used to satisfy the Advanced Laboratory requirement subject to approval by the faculty supervisor and the Associate Chair. The maximum number of ENEE499/ENEE499L credits that may be applied towards Category C requirements is five, except for students in the departmental honors program, who may take up to six credits.
4. Courses may not be counted for two different Technical Elective categories.
5. Disciplinary foundation CMSC or ENEE courses (i.e. CMSC412, ENEE447, CMSC330, CMSC351, ENEE303, ENEE322, ENEE350, and ENEE446) may not be used to fulfill any Technical Elective Categories.
6. Courses listed in the prohibited course list may not be used for any technical electives category.
7. If you have any questions on how these requirements affect your current selection of technical electives, please contact an advisor.

# GRADUATION PLANS

Click here (https://eng.umd.edu/advising/four-year-plans/) for roadmaps for graduation plans in the A. James Clark School of Engineering.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Computer Engineering Minor

**Program Director:** Donald Yeung, Ph.D.

The minor in Computer Engineering is a program offered by the Department of Electrical and Computer Engineering. The minor will introduce students to core hardware concepts, such as computer architecture, digital logic design, and digital circuit design, as well as core software concepts, such as algorithms, discrete mathematics, and programming. Students will also learn how hardware and software interact at the interface, for example in embedded systems. With a minor in computer engineering, students will not only receive preparation for entry into the computer industry, but they will also become more effective at applying computing in their primary field of study.

## REQUIREMENTS

The Computer Engineering minor has 18 required credits of coursework. All students in the minor will be required to satisfy the two prerequisites, ENEE150 and MATH141, with grades of "B-" or higher. Students in the Electrical Engineering major will have satisfied these prerequisites as part of their program.

In order to complete the minor, students must complete all 18 required credits of the minor with a minimum grade of "C-" in each minor course

| Course | Title | Credits |
|---|---|---|
| ENEE244 | Digital Logic Design | 3 |
| ENEE245 | Digital Circuits and Systems Laboratory | 2 |
| ENEE350 | Computer Organization | 3 |
| ENEE351 | Algorithms and Data Structures | 4 |
| Select two of the following elective courses: | | 6 |
| ENEE359 | Intermediate Topics in Computer Engineering (ENEE359F Hardware FPGA Design with Verilog) | |
| ENEE359 | Intermediate Topics in Computer Engineering (ENEE359X Introduction to System Programming) | |
| ENEE436 | Foundations of Machine Learning | |
| ENEE440 | Microprocessors | |
| ENEE446 | Digital Computer Design | |
| ENEE457 | Computer Systems Security | |
| ENEE459 | Topics in Computer Engineering (ENEE459C Digital CMOS VLSI Design Methods) | |
| ENEE459 | Topics in Computer Engineering (ENEE459E Cryptology) | |
| ENEE459 | Topics in Computer Engineering (ENEE459P Parallel Algorithms) | |
| ENEE459 | Topics in Computer Engineering (ENEE459V Embedded Systems) | |
| **Total Credits** | | **18** |

# Cyber-Physical Systems Engineering Major

**Program Director:** Romel Gomez, Ph.D.

The Bachelor of Science in Cyber-Physical Systems Engineering will provide students with a solid foundation in key emerging technologies of the Internet of Things (IoT), the ability to integrate devices into complete IoT systems, and an understanding of how IoT fits within the wider context of information and communications technology, including data analytics and cloud computing. At the senior level, students will ultimately be able to specialize in one of the following tracks: Hardware, Computation, or Security track or pursue a General track option that provides a focus on courses from the other three tracks. It is expected that graduates will be in high demand in such occupational areas as hardware/software developers, computer systems analysts, network architects and administrators, information security analysts, information systems analysts and computer programs.

# Admission to the Major

## Clark School Admissions Criteria

All students applying to the Cyber-Physical Systems Engineering (CPSE) program must first meet the Clark School of Engineering's Limited Enrollment Program requirements (https://eng.umd.edu/transfer/external/):

**Engineering LEP Requirements**

- Minimum 3.0 cumulative GPA (from all previous institutions)
- Completion of MATH141 (Calculus II) with a minimum grade of a B-
- Completion of PHYS161 (Physics I) with a minimum grade of B-
- Completion of either CHEM 135, CHEM 271 or CHEM134* with a minimum grade of C-.

Students must adhere to all LEP Admissions policies outlined in the University's LEP Website (https://lep.umd.edu/).

**Students who take an equivalent to CHEM134 must also have completed an equivalent to CHEM131 with a minimum grade of C-.*

## Additional Admissions Requirements

In addition to the LEP admissions criteria, students applying to the Cyber-Physical Systems Engineering (CPSE) major must meet the following requirements:

- Completion of the following major courses with a minimum grade of a C-
  - ENES100: Intro to Engineering Design
  - MATH140: Calculus I
  - PHYS260/261: Physics II
  - An introductory programming course (see curriculum page (https://shadygrove.ece.umd.edu/curriculum/) for details)
  - One of the following math courses:
    - MATH246: Differential Equations
    - MATH241: Calculus III
    - MATH240: Linear Algebra
- Completion of all lower-level General Education requirements (usually satisfied by earning an associate's degree from a community college within the State of Maryland).
- At least 60 transferable credits to UMD

Due to the similarity in curriculum content and the physical location of course offerings, students in the Electrical Engineering, Computer

Engineering, and Computer Science programs at UMD will not be eligible to add Cyber-Physical Systems Engineering as a second major or degree.

This program is mainly intended for students transferring from a Maryland public community college. While students at the College Park campus can pursue the program, they will not be able to seek admission into the School of Engineering and the Cyber-Physical Systems Engineering major until they have completed the Engineering LEP gateway courses, required first and and second year major courses, lower-level General Education requirements, and have earned at least 60 credits. The junior and senior years would take place at the Shady Grove campus.

# Program Educational Objectives

The program educational objective of this program is to produce a well-trained workforce in the emerging technologies of internet of things. The Bachelor of Science in Cyber-Physical Systems Engineering will produce engineering graduates who:

- Use their hardware and software engineering design training and problem-solving skills to contribute professionally in an industrial, research and applications environment;
- Demonstrate initiative, leadership, teamwork, and continued professional development;
- Demonstrate understanding of the impact of their professional activities on society.

# Student Learning Outcomes

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. The ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments that must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

# REQUIREMENTS

## First & Second Year

Prior to being admitted to the Cyber-Physical Systems Engineering major, students should have completed the Engineering LEP gateway courses, basic math/science courses, lower-level General Education requirements, and at least 60 credits.

| Course | Title | Credits |
|---|---|---|
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| ENGL101 | Academic Writing | 3 |
| CHEM135 | General Chemistry for Engineers | 3 |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | 3 |
| PHYS260 | General Physics: Electricity, Magnetism and Thermodynamics | 3 |
| PHYS261 | General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | 1 |
| Programming Requirement [1] | | 2-4 |
| ENES100 | Introduction to Engineering Design | 3 |
| One of the following MATH2xx courses: | | 3-4 |
| MATH246 | Differential Equations for Scientists and Engineers | |
| MATH241 | Calculus III | |
| MATH240 | Introduction to Linear Algebra | |
| General Education Requirements/Additional Electives | | 28-31 |

[1] Any of the following programming courses or their equivalents will be accepted:
- ENEE140
- CMSC131
- CMSC106
- Any introductory course in C, C++, Java, or Python (student must submit the course to ECE Department for Evaluation)

# Junior & Senior Year at Shady Grove

**Junior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENEB302 | 4 | ENEB304 | 3 |
| ENEB344 | 4 | ENEB352 | 3 |
| ENEB354 | 3 | ENEB353 | 3 |
| ENEB340 | 3 | ENEB355 | 3 |
| ENEB341 | 3 | ENEB345 | 3 |
| | **17** | | **15** |

**Senior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENEB408 (ENEB408A Capstone Design I) | 3 | ENEB408 (ENEB408B Capstone Design II) | 3 |
| ENEB454 | 3 | Senior Level Electives (based on track) | 12 |
| ENEB444 | 3 | | |
| ENEB346 (Linear Algebra for Machine Learning Applications) | 3 | | |
| Professional Writing | 3 | | |
| | **15** | | **15** |

**Total Credits 62**

# Tracks

## Hardware Track

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| ENEB455 | Advanced FPGA System Design using Verilog for Embedded Systems | 3 |
| **Elective Courses** | | **9** |
| Select three of the following: | | |
| ENEB443 | Hardware/Software Security for Embedded Systems | |
| ENEB451 | Network Security | |
| ENEB452 | Advanced Software for Connected Embedded Systems | |
| ENEB453 | Web-Based Application Development | |
| ENEB456 | Machine Learning Tools (Machine Learning Tools) | |
| ENEB457 | Foundations of Databases for Web Applications | |
| **Total Credits** | | **12** |

## Computational Track

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| ENEB456 | Machine Learning Tools (Machine Learning Tools) | 3 |
| **Elective Courses** | | **9** |
| Select three of the following: | | |
| ENEB443 | Hardware/Software Security for Embedded Systems | |
| ENEB451 | Network Security | |
| ENEB452 | Advanced Software for Connected Embedded Systems | |
| ENEB453 | Web-Based Application Development (Web Based Application Development) | |
| ENEB455 | Advanced FPGA System Design using Verilog for Embedded Systems | |
| ENEB457 | Foundations of Databases for Web Applications | |
| **Total Credits** | | **12** |

## Security Track

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| ENEB451 | Network Security | 3 |
| **Elective Courses** | | **9** |
| Select three of the following: | | |
| ENEB443 | Hardware/Software Security for Embedded Systems | |
| ENEB452 | Advanced Software for Connected Embedded Systems | |
| ENEB453 | Web-Based Application Development | |
| ENEB455 | Advanced FPGA System Design using Verilog for Embedded Systems | |
| ENEB456 | Machine Learning Tools (Machine Learning Tools) | |
| ENEB457 | Foundations of Databases for Web Applications (Foundations of Databases for Web Applications) | |
| **Total Credits** | | **12** |

## General Track

The General Track offers a general focus of course content with classes from each of the three tracks. While there are no specific required or elective courses for this track, the General Track requires 12 credits, which is the same as the other three tracks. Consult with an advisor for details.

# GRADUATION PLANS

Click here (https://eng.umd.edu/advising/four-year-plans/) for roadmaps for graduation plans in the A. James Clark School of Engineering.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Electrical Engineering Major

**Program Director:** Donald Yeung, Ph.D.

The Bachelor of Science degree in Electrical Engineering degree program at the University of Maryland is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s) and Similarly Named and Engineering Programs.

Electrical engineers create innovative technology solutions in a wide range of areas, from handheld communications to solar panels; from cardiac pace makers to autonomous robots; from wireless networks to bio-engineered sensors that detect dangerous pathogens; and intelligent surveillance systems that perform face and motion recognition. Employers visiting campus seek out electrical engineering students for recruitment more than any other major at the University of Maryland.

Electrical engineers have been uniquely responsible for developing many of the innovations that have brought us modern life and are urgently needed today to help solve a variety of global problems, including challenges related to energy, communications, health care, global warming, and national security. Electrical engineering underpins all other engineering disciplines, encompassing biomedical devices technology, micro- and nanoelectronics, information systems, wireless communications and signal processing, power systems, lasers and optics, electronic devices, computer software-hardware integration, and control systems. Electrical engineers led revolutions in the music and telecommunications industries, and are poised to lead the next revolutionary innovations in nanotechnology, robotics, and other advanced technologies.

# Program Educational Objectives

Broadly stated, the **Program Educational Objectives (PEOs)** for the undergraduate major in electrical engineering pertain to the accomplishments and performance of our students within a few years from graduation. These objectives are determined in consultation with the various constituencies of the electrical engineering program and agreed upon and approved by a consensus of the faculty.

Within a few years from graduation, a graduate of electrical engineering will have engaged in professional development, and will have attained any of the following program educational objectives:

1. Achieve advanced technical expertise and/or advance to a leadership position in industry or government
2. Earn a graduate degree from a respected graduate program in computer engineering, electrical engineering, or related field
3. Become an innovator and/or entrepreneur in computer engineering, electrical engineering, or related space
4. Use their professional knowledge, skills and abilities, as well as their sense of ethical responsibility, to make a positive impact on societal and environmental concerns and/or to improve the climate for diversity, equity and inclusiveness within the profession

# Student Learning Outcomes

A comprehensive set of Student Learning Outcomes (SLOs) has been derived from the Program Educational Objectives (PEOs). These SLOs comprise the knowledge and skills all Electrical Engineering students are expected to possess by the time they graduate so the PEOs can be accomplished. The SLOs are:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

# REQUIREMENTS

Requirements for the Electrical Engineering major include thorough preparation in mathematics, physics, chemistry, and engineering science. Elective courses must include both Electrical Engineering courses and technical courses outside the department. Students must earn a grade of "C-" or higher in all engineering, mathematics, and science courses, as well as the prerequisites for these courses. A sample program is shown below.

**Freshman Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| CHEM135 | 3 | ENES100[1] | 3 |
| ENEE101[1] | 3 | ENEE150[2] | 3 |
| ENEE140 | 2 | MATH141 | 4 |
| ENGL101 | 3 | PHYS161 | 3 |
| MATH140 | 4 | General Education[3] | 3 |
| | **15** | | **16** |

**Sophomore Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENEE290 | 4 | ENEE205 | 4 |
| ENEE244 | 3 | ENEE222 | 4 |
| MATH241 | 4 | ENEE245 | 2 |
| PHYS260 & PHYS261 | 4 | PHYS270 & PHYS271 | 4 |
| | | General Education[3] | 3 |
| | **15** | | **17** |

**Junior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENEE304 | 3 | ENEE200 | 3 |
| ENEE323 | 4 | ENEE305 | 2 |
| ENEE350 | 3 | ENEE324 | 3 |
| ELECTIVE- General Technical Electives[4] | 3 | ENEE382 | 4 |
| General Education[3] | 3 | General Education[3] | 3 |
| | **16** | | **15** |

**Senior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ELECTIVE - EE Electives[5] | 11 | ELECTIVE - EE Electives[5] | 11 |
| General Education[3] | 3 | Professional Writing (ENGL39x) | 3 |
| | **14** | | **14** |

**Total Credits 122**

1. ENEE101 and ENES100 cannot be taken in the same semester. Students may take these courses consecutively within their first year in the order of choice.
2. Students must complete ENEE140 or pass the exemption exam or AP CS exam before taking ENEE150.
3. Note: Please see http://4yearplans.umd.edu.
4. Must come from list of courses approved for general technical electives.
5. Must come from a list of courses approved for EE electives. At least 3 credits must come from Category A; at least 2 credits must from Category B; and at least 3 credits must come from Category C. Up to 7 credits can come from approved non-ENEE courses that are appropriate for the area of interest chosen by the student. Non-ENEE courses may not be used to fulfill the Category B or C requirements.

# Technical Elective Requirements

***Effective Fall 2024, all entering BSEE students must:***

1. Distribute their 22 credits of EE technical electives among the following course categories:

| Category | Electives | Credits |
|---|---|---|
| Category A | Advanced Theory and Applications | minimum of 3 credits |
| Category B | Advanced Laboratory | minimum of 2 credits |
| Category C | Capstone Design | minimum of 3 credits |

Note: ENEE499, Senior Projects in Electrical and Computer Engineering, may be used to satisfy either the Category A or the Category B requirement subject to approval by the faculty supervisor and the Associate Chair; it cannot be used as a Category C course.
The maximum number of ENEE499/ENEE499L credits that may be applied towards EE technical elective requirements is five, except for students in the departmental honors program, who may take up to six credits.

2. Distribute their 3 credits of general technical electives as follows:
   a. The 3 credits may be any upper-level course (300 level or higher) from the math, engineering, and basic science disciplines whose courses start with the following prefixes and who do not appear on the list of unacceptable courses available from the Undergraduate Studies Office: AMSC, BCHM, BIOE, BSCI, CHEM, CMSC, ENAE, ENCE, ENCH, ENEE, ENES, ENFP, ENMA, ENME, ENNU, ENRE, MATH, PHYS, and STAT. The most up-to-date list of approved and unacceptable courses will always be available from the Undergraduate Studies Office and on the ECE website.
   b. The 3 credits may be any upper-level course (300 level or higher) whose prefix is not given in the list above, assuming that the student:
      i. completes the application to allow the course to count as a general elective,
      ii. demonstrates how this course complements the student's professional goals, and
      iii. receives the signed approval of the Associate Chair for Undergraduate Education.

If you have any questions about how these requirements affect your current selection of senior EE electives, please contact an advisor.

## GRADUATION PLANS

Click here (https://eng.umd.edu/advising/four-year-plans/) for roadmaps for graduation plans in the A. James Clark School of Engineering.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Quantum Science and Engineering Minor

The minor in Quantum Science and Engineering (QSE) is an interdisciplinary program offered by the Departments of Electrical and Computer Engineering, Physics, Computer Science, Mechanical Engineering, and Materials Science and Engineering. Students in the minor will develop fundamentals in math and physics needed for studying quantum systems. They will also be introduced to different aspects of quantum, such as quantum computing technologies, algorithms for quantum computers, characteristics of quantum materials, and sensing and noise in quantum systems. Besides theory courses, students will in addition be given hands-on laboratory experience, either in building quantum hardware or in programming quantum computers. This curriculum, offered through the QSE minor, will provide students with a solid foundation in quantum, preparing them for the coming quantum revolution.

## Program Learning Outcomes

1. An ability to identify, formulate, and solve complex problems in quantum by applying principles of engineering, science, and mathematics
2. An ability to communicate effectively with a range of audiences
3. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use scientific and engineering judgment to draw conclusions
4. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

## REQUIREMENTS

The Quantum Science and Engineering minor will consist of 5 courses, totaling 15-16 credits depending on which courses students select. As per university requirements, at least 3 courses (9 credits) must be unique to the minor, permitting 2 courses (6-7 credits) to double count with the students' majors. For each course, students will be able to choose among a list of courses from a course category.

| Course | Title | Credits |
|---|---|---|
| **Mathematics Course (choose one of the following):** | | **3-4** |
| MATH240 | Introduction to Linear Algebra | |
| MATH461 | Linear Algebra for Scientists and Engineers | |
| ENEE290 | Introduction to Differential Equations and Linear Algebra for Engineers | |
| PHYS274 | Mathematical Methods for Physics I | |
| MATH243 | Introduction to Linear Algebra and Differential Equations | |
| MATH341 | Multivariable Calculus, Linear Algebra, Differential Equations II (Honors) | |
| **Introduction to Quantum Course (choose one of the following):** | | **3-4** |
| ENEE491 | Quantum Phenomena in Electrical Engineering | |
| PHYS401 | Quantum Physics I | |
| ENMA434 | (Quantum Mechanics for Engineers) | |
| PHYS360 | (Introduction to Quantum Mechanics: A Linear Algebra Approach) | |
| **Core Course (choose one of the following):** | | **3** |
| PHYS467/ ENEE492 | Introduction to Quantum Technology | |
| ENMA436 | Introduction to Quantum Materials and Devices | |
| ENME434 | Engineering Quantum Systems and Sensors | |
| PHYS/ CMSC457 | Introduction to Quantum Computing | |
| **Laboratory Course (choose one of the following):** | | **3** |
| ENEE493 | (Quantum Hardware Laboratory) | |
| CMSC437 | (Introduction to Quantum Software Laboratory) | |
| **Elective Course (choose one of the following):** [1] | | **3** |
| ENEE489 | Topics in Electrophysics (ENEE489C Quantum Information Processing) | |
| ENEE489 | Topics in Electrophysics (ENEE489W Incubating Quantum Leaps) | |
| ENMA481 | Introduction to Electronic and Optical Materials | |

[1] In lieu of these Elective options, students can also choose a second course from the Core or Laboratory categories.

# Fire Protection Engineering

**A. James Clark School of Engineering**
3106 JM Patterson Building
Phone: 301-405-3992
http://fpe.umd.edu

Students interested in protecting people, property, buildings, communities and the environment, designing fire detection, mitigation and suppression systems, developing fire-safe products and materials, conducting hazard analysis and performing computer simulations, can all pursue their interests by earning a B.S. degree and working in fire protection engineering.

Our students begin their undergraduate career with a strong engineering education grounded in the fundamental concepts of physics, mechanics, dynamics, fluid mechanics, thermodynamics and heat transfer. Combining these skills with the design of engineering systems, the fire protection engineer will learn how to develop solutions to protect from the devastating effects of fires. In their junior and senior years, students will focus on:

- Detection and suppression
- Fire-resistant materials
- Fire dynamics
- Emission of smoke, soot and gases
- Human behavior and life safety
- Computer modeling of fire, smoke, suppression and evacuation

## PROGRAMS

### Major

- Fire Protection Engineering Major (p. 424)

## ADVISING

Advising is required for all undergraduate students each semester prior to registering for classes. Please refer to the academic advising section of our website for more information, available at: http://fpe.umd.edu/undergraduate/current-students/advising-support/.

## OPPORTUNITIES

### Undergraduate Research Experiences

Many FPE undergraduates perform original research under the direction of a faculty member. These include analytical, experimental, and computational studies. The topics are chosen in discussions between the student and a faculty member. Students can perform research as a volunteer, for pay, or for credit (e.g., ENFP429 or ENFP489).

### Fieldwork Opportunities

Information about fieldwork and summer employment is available in the department office, or visit http://fpe.umd.edu/careers/.

### Internships

Information about internships is available in the department office, or visit http://fpe.umd.edu/careers/.

### Co-op Programs

Information about co-op employment is available in the department office, or visit http://fpe.umd.edu/careers/.

### Honors Program

Qualified students in the department are eligible for participation in the Clark School's Engineering Honors Program (https://eng.umd.edu/engineering-honors-program/) and may be invited to the Salamander Honorary Society of the Department of Fire Protection Engineering.

### Student Societies and Professional Organizations

The University of Maryland student chapter of the Society of Fire Protection Engineers is an active professional society open to all interested FPE students. The department honor society, Salamander, is open to academically eligible juniors and seniors. Student membership in the National Fire Protection Association is also available. Information on these organizations may be obtained from the department office or at http://fpe.umd.edu/undergraduate/current-students/student-groups/.

### Scholarships and Financial Assistance

Numerous scholarships and grants are available to students in the department from organizational and corporate sponsors. Information is available on eligibility, financial terms, and retention criteria in the department office. The majority of the scholarships are for junior and senior students, but some scholarships are available for first- and second-year students. Additional information is available at http://fpe.umd.edu/undergraduate/current-students/scholarships/.

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For more information, visit: http://financialaid.umd.edu.

### Awards and Recognition

Academic achievement awards are sponsored by the department, student and professional societies along with the honor society. These awards are presented at various department events and also at the annual A. James Clark School of Engineering Honors and Awards ceremony. Eligibility criteria for these awards are available in the department office.

### Academic Programs and Departmental Facilities

Our laboratories provide hands-on experience with standardized ASTM test procedures, more fundamental experiments, and large scale burn tests. Our computer laboratory has workstations enabled with the latest software for modeling fires, structures, and human behavior. Our student lounge is frequently used for student meetings and study sessions.

## Fire Protection Engineering Major

**Program Director:** Peter Sunderland, Ph.D.

Fire Protection Engineering is concerned with the applications of scientific and technical principles to the understanding, mitigation, and suppression of fire. This includes the effects of fire on people, on structures, on commodities, on the environment, and on operations. The identification of fire hazards and their risk, relative to the cost of protection, is an important aspect of fire safety design.

The fire protection engineering student receives a fundamental engineering education involving the subjects of mathematics, physics, and chemistry. The program builds on other core engineering subjects of material science, fluid mechanics, thermodynamics and heat transfer with emphasis on principles and phenomena related to fire. Fluid mechanics includes applications to sprinkler design, suppression systems, and smoke movement. Heat transfer introduces the student to principles of heat conduction, heat convection, thermal radiation, evaporation of liquid fuels and pyrolysis of solid fuels. The subject of combustion is introduced involving premixed and diffusion flames, ignition and flame spread, and burning processes. Laboratory experience is gained by collecting, viewing, and analyzing data obtained in standard fire tests and measurements.

Design procedures are emphasized for systems involving alarm, detection, suppression, smoke control, and building safety requirements. The background and application of codes and standards are studied to prepare the student for practice in the field. System concepts of fire safety and methods of analysis are presented. A senior capstone design project is included in a course that allows students who are nearing graduation to integrate the knowledge and skills they have acquired in their program and apply them to develop fire protection solutions to complex, yet practical, challenges.

There is an option to complete fire protection engineering major requirements (ENFP courses only) online (students should be aware that department policies apply). Please visit this website (https://fpe.umd.edu/undergraduate/degrees/bachelor-science/) (https://fpe.umd.edu/undergraduate/degrees/bachelor-science) for more information.

The Bachelor of Science degree in Fire Protection Engineering degree program at the University of Maryland is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and Program Criteria for Fire Protection and Similarly Named Engineering Programs.

## Program Educational Objectives

The educational objectives of the undergraduate program in Fire Protection Engineering are to produce graduates who:

1. Practice fire protection engineering regionally and/or globally;
2. Pursue advanced studies in fire protection engineering or related fields;
3. Actively participate in the development of engineering decisions on societal, environmental, economic and safety issues at the local or global levels;
4. Achieve professional certification and licensure;
5. Maintain continual professional competency and practice ethically.

The practice of fire protection engineering has developed from the implementation and interpretation of codes and standards directed at fire safety. These safety codes contain technical information and prescriptions derived from experience and research. Research has also led to quantitative methods to assess aspects of fire and fire safety. Thus, fire protection engineers need to be versed in the current technical requirements for fire safety and in the scientific principles that underlie fire and its interactions.

## Student Learning Outcomes

Students graduating from the Department of Fire Protection Engineering will have:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

## REQUIREMENTS (AT COLLEGE PARK)

In general, the fire protection engineering curriculum is designed to give the student a grounding in the science and practice of fire safety. The field touches on many disciplines and its scientific basis is expanding. It is an engineering discipline that is still growing, and offers a variety of excellent career opportunities. These cover a wide spectrum involving safety assessment reviews, hazards analysis and research, loss prevention, regulatory issues, and the development of new technologies and products for fire detection, alarm, mitigation and suppression.

| Course | Title | Credits |
|---|---|---|
| CHEM135 | General Chemistry for Engineers | 3 |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| MATH241<br>or MATH240 | Calculus III<br>Introduction to Linear Algebra | 4 |
| MATH246 | Differential Equations for Scientists and Engineers | 3 |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | 3 |
| PHYS260 | General Physics: Electricity, Magnetism and Thermodynamics | 3 |
| PHYS261 | General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | 1 |
| ENES100 | Introduction to Engineering Design | 3 |
| ENES102 | Mechanics I | 3 |
| ENES220 | Mechanics II | 3 |
| ENES221 | Dynamics | 3 |

| | | |
|---|---|---|
| ENES232 | Thermodynamics | 3 |
| ENGL101 | Academic Writing (General Education FSAW) | 3 |
| Professional Writing (General Education FSPW) | | 3 |
| General Education Requirements [1] | | 18 |
| ENFP201 | Numerical Methods with MatLab | 3 |
| ENFP250 | Introduction to Life Safety Analysis | 3 |
| ENFP300 | Fire Protection Fluid Mechanics | 3 |
| ENFP310 | Water Based Fire Protection Systems Design | 3 |
| ENFP312 | Heat and Mass Transfer | 3 |
| ENFP350 | Professional Development Seminar | 1 |
| ENFP405 | Structural Fire Protection | 3 |
| ENFP410 | Special Hazard Suppression Systems | 3 |
| ENFP411 | Risk-Informed Performance Based Design | 3 |
| ENFP413 | Human Response to Fire | 3 |
| ENFP415 | Fire Dynamics | 3 |
| ENFP420 | Fire Assessment Methods and Laboratory | 4 |
| ENFP425 | Enclosure Fire Modeling | 3 |
| ENFP426 | Computational Methods in Fire Protection | 3 |
| ENFP440 | Smoke Management and Fire Alarm Systems | 3 |
| Technical Electives [2] | | 12 |
| **Total Credits** | | **120** |

1 Please see the General Education webpage (https://gened.umd.edu/) for a full list of General Education requirements, including those not covered by major requirements.

2 Technical electives are chosen in consultation with the academic advisor but must include the following:

- at least 3 credits of: MATH400+ or STAT 400+;
- at least 3 credits of: ENFP 400+; and
- at least 6 credits of: Engineering coursework 300+, CHEM 400+, CMSC400+, MATH400+, or PHYS 400+.

# REQUIREMENTS (ONLINE)

In general, the fire protection engineering curriculum is designed to give the student a grounding in the science and practice of fire fire safety. The field touches on many disciplines and its scientific basis is expanding. It is an engineering discipline that is still growing, and offers a variety of excellent career opportunities. These cover a wide spectrum involving safety assessment reviews, hazards analysis and research, loss prevention, regulatory issues, prevention and the development of new technologies and products for fire detection, alarm, mitigation and suppression.

Students should work with a fire protection engineering advisor to determine an institution at which they can pursue degree requirements. Please visit this website (https://fpe.umd.edu/undergraduate/degrees/bachelor-science/) for more information.

| Course | Title | Credits |
|---|---|---|
| **Requirements Available at College Park or through Prior Learning Credit** | | |
| CHEM135 | General Chemistry for Engineers | 3 |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| MATH241 | Calculus III | 4 |
| or MATH240 | Introduction to Linear Algebra | |
| MATH246 | Differential Equations for Scientists and Engineers | 3 |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | 3 |
| PHYS260 | General Physics: Electricity, Magnetism and Thermodynamics | 3 |
| PHYS261 | General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | 1 |
| ENES100 | Introduction to Engineering Design | 3 |
| ENES102 | Mechanics I | 3 |
| ENES220 | Mechanics II | 3 |
| ENES221 | Dynamics | 3 |
| ENES232 | Thermodynamics | 3 |
| ENGL101 | Academic Writing (General Education FSAW) | 3 |
| General Education Requirements [1] | | 18 |
| Technical Electives [2] | | 12 |
| **Requirements Available Online (Beginning Fall 2025). [3]** | | |
| Professional Writing (General Education FSPW) | | 3 |
| ENFP201 | Numerical Methods with MatLab | 3 |
| ENFP250 | Introduction to Life Safety Analysis | 3 |
| ENFP300 | Fire Protection Fluid Mechanics | 3 |
| ENFP310 | Water Based Fire Protection Systems Design | 3 |
| ENFP312 | Heat and Mass Transfer | 3 |
| ENFP350 | Professional Development Seminar | 1 |
| ENFP405 | Structural Fire Protection | 3 |
| ENFP410 | Special Hazard Suppression Systems | 3 |
| ENFP411 | Risk-Informed Performance Based Design | 3 |
| ENFP413 | Human Response to Fire | 3 |
| ENFP415 | Fire Dynamics | 3 |
| ENFP420 | Fire Assessment Methods and Laboratory | 4 |
| ENFP425 | Enclosure Fire Modeling | 3 |
| ENFP426 | Computational Methods in Fire Protection | 3 |
| ENFP440 | Smoke Management and Fire Alarm Systems | 3 |
| **Total Credits** | | **120** |

1 Please see the General Education webpage (https://gened.umd.edu/) for a full list of General Education requirements, including those not covered by major requirements.

2 Technical electives are chosen in consultation with the academic advisor but must include the following:

- at least 3 credits of: MATH400+ or STAT 400+;
- at least 3 credits of: ENFP 400+; and
- at least 6 credits of: Engineering coursework 300+, CHEM 400+, CMSC400+, MATH400+, or PHYS 400+.

3 Check the latest information (https://fpe.umd.edu/undergraduate/degrees/bachelor-science/) for which courses are available online.

# GRADUATION PLANS

Click here (https://eng.umd.edu/advising/four-year-plans/) for roadmaps for graduation plans in the A. James Clark School of Engineering.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Fischell Department of Bioengineering

**A. James Clark School of Engineering**
3102 A. James Clark Hall
Phone: 301-405-8268
bioe-undergrad@umd.edu
http://bioe.umd.edu

The Fischell Department of Bioengineering at the University of Maryland is the home of a growing academic discipline, exciting interdisciplinary degree programs, and faculty and students who want to make a difference in human health care through education, research, and invention.

Health care is changing rapidly, moving toward more technological approaches to diagnosis, treatment, personalized and regenerative medicine, and the extensive use of data science. Biomedical engineering is steadily becoming the world's largest industrial sector, and as a result, there is an increasing demand both for doctors who are technically competent and for engineers who are properly trained in basic medical science.

To help meet these needs, we take advantage of the A. James Clark School of Engineering's location in a metropolitan area that is home to an expansive number of health care facilities, medical schools, biomedical research centers, and federal regulatory agencies. We have established relationships with the National Institutes of Health (including the National Institute of Biomedical Imaging & Bioengineering and the National Cancer institute), the National Science Foundation, and the U.S. Food and Drug Administration, as well as educational institutions such as the University of Maryland Baltimore (UMB) Schools of Medicine, Dentistry, and Pharmacy, and other universities locally and nationally. Our growing interdisciplinary faculty is dedicated to expanding our research collaborations.

We are also dedicated to the vision of engineering entrepreneurship —getting science out of the lab and into the hands of doctors, care providers and consumers. For example, we are a founding member of the FDA-funded Maryland Center of Excellence in Regulatory Science and Innovation (http://www.bioe.umd.edu/research/fda/), which focuses on modernizing and improving the ways drugs and medical devices are reviewed and evaluated.

We have a view of the human condition that is unlike many bioengineering and biomedical engineering departments in the country. Our thoughts and ideas are grounded first in biology. Our faculty and students think about biological systems: how they work, how they function, and how they interact with their environments. They think about how nature organizes information and materials into molecules, cells, tissues, organisms and ecosystems that sense and respond to physical and chemical cues. They try to understand processes that go astray, like those involved in disease. Armed with this knowledge, they use engineering principles to develop new technologies and devices that will change lives and improve human health throughout the world.

## PROGRAMS

## Major

- Biocomputational Engineering Major (p. 428)
- Bioengineering Major (p. 430)

## ADVISING

The Fischell Department of Bioengineering is committed to student advising and aims to provide comprehensive curricular support to all of its students towards their academic success. Students will find that at various points during their academic careers, they may need a certain kind of guidance. Students may always begin by addressing their questions to bioe-undergrad@umd.edu, and we will point you in the right direction. Generally, advising is handled by one or a combination of the following: faculty advisor, departmental advisor, and/or college advisor.

### Faculty Advising

All bioengineering and biocomputational engineering majors are assigned to a faculty advisor. Students are required to meet with their faculty advisors at least once per semester. For currently enrolled majors, the mandatory advising period occurs in the weeks prior to registration for the next semester. The advising meeting with the faculty member generally covers the following: course selection for upcoming semester, four-year planning, and career goals. Students should prepare for every advising meeting by completing and updating their major's Advising Worksheet.

Freshmen and transfers will be assigned to faculty advisors and notified during their first semesters. All other students may contact bioe-undergrad@umd.edu or biocomp@umd.edu if they are not sure who their advisor is. For faculty contact information, please see the faculty list (http://www.bioe.umd.edu/faculty/).

### Departmental Advising

Current and prospective transfer students may also need to meet with a departmental (staff) advisor. Some examples of departmental advising include: Benchmarks (academic progress), planning for study abroad, C.A.R.E (academic probation), double-major/double-degree planning, graduation audit (seniors), and additional help with four-year planning.

For departmental advising, please send an email including your name, UID, and general question to bioe-undergrad@umd.edu (for the Bioengineering major) or biocomp@umd.edu (for the Biocomputational Engineering major). All students seeking advising should read and make sure that they understand the policies and requirements stated in the BIOE Undergraduate Handbook (http://www.bioe.umd.edu/undergraduate/advising/references/).

### College Advising

The Clark School's Engineering Academic Services Office (EAS) (https://eng.umd.edu/advising/) also provides a broad range of services and support for engineering students. Some policies are the oversight of the college, so your faculty or departmental advisor may at times refer you to a Clark School advisor. For example, transfer admission/transfer credit, 45-credit benchmark review, and permission to enroll at another institution are handled by the college.

# OPPORTUNITIES

## Undergraduate Research Experiences

The Bioengineering Department offers a two-year research based **Bioengineering Undergraduate Honors Program**. Interested students should apply to the honors program in the spring of their sophomore year. Those accepted into the program will begin research in their junior year. For more information, please see: http://bioe.umd.edu/undergraduate/honors/.

The Office of Undergraduate Research also assists students in finding on and off campus research opportunities, see: http://our.umd.edu.

## Honors Program

The Fischell Department of Bioengineering Undergraduate Honors Program is a research-oriented, thesis-based enrichment experience that serves to augment the curriculum by providing practical, hands-on learning opportunities. The primary goal of the Honors program is to develop BIOE graduates who will be among the most competitive applicants for graduate and medical school programs, as well as industry jobs. Toward this end, the program provides exceptional undergraduate students with training in academic and professional pursuits while offering a formal mechanism to be recognized for scholarly achievements.

For more information, including program admission and completion requirements, see http://bioe.umd.edu/undergraduate/honors/.

## Student Societies and Professional Organizations

BMES-UMD is the University of Maryland, College Park chapter of the Biomedical Engineering Society (BMES). BMES-UMD's mission is to unite and promote the future of the biomedical engineering profession; and to offer rising biomedical engineers the chance to establish leadership, publish their work, and participate in a wide range of activities that will enhance their careers. For more information, visit http://umdbmes.weebly.com.

Alpha Eta Mu Beta (AEMB) is the National Biomedical Engineering Honor Society, and the University of Maryland Fischell Department of Bioengineering established its chapter in Spring 2015. For more information, visit http://umdaemb.weebly.com.

The UMD chapter of the Society for Biomaterials was established in 2018. The Society for Biomaterials is a national organization that seeks to unite professionals from different disciplines under the common goal of advancing biomaterials research.

The Engineering World Health Chapter at the University of Maryland seeks to inspire and mobilize the biomedical engineering community to improve the quality of healthcare in vulnerable communities. For more information, visit http://ewhatumd.wixsite.com/ewh-umd/.

## Scholarships and Financial Assistance

The university and the A. James Clark School of Engineering offer a range of financial support to talented undergraduate students enrolled at the School. Offerings include the A. James Clark Endowed Scholarship fund and the Benjamin T. Rome Scholarship. Our program is competitive, with awards made on the basis of merit, financial need, and other factors.

For more information on a variety of scholarships, please visit the Clark School of Engineering (https://eng.umd.edu/scholarships/)'s website.

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, please visit http://financialaid.umd.edu.

We also have several departmental annual awards and scholarships for which students may apply and be selected based on their scholastic achievements, service to the department and the profession. These awards are open to juniors and seniors in the program. Information on these annual awards and scholarships may be obtained from the faculty advisors in the department.

## Awards and Recognition

- Fischell Dept of Bioengineering Outstanding Junior Award
- Fischell Dept of Bioengineering Outstanding Senior Award
- Fischell Dept of Bioengineering Outstanding Research Award
- Fischell Dept of Bioengineering Outstanding Leadership Award
- Fischell Dept of Bioengineering Outstanding Citizen Award
- Seymour & Faye Wolfe Scholarship: Bioengineering student
- Jeffrey C. and Sandra W. Huskamp Scholarship: Bioengineering student

## B.S./M.S. Program

The Fischell Department of Bioengineering's combined B.S./M.S. program provides undergraduate students the opportunity to complete the Bachelor of Science (B.S.) and Master of Science (M.S.) degrees in approximately five and a half years by double counting graduate coursework toward the B.S. and M.S. degrees. Ideal candidates for this program are high achieving, research-oriented undergraduate students interested in pursuing and developing research projects that will translate to the graduate level and, ultimately, into a master's thesis. For more information, visit http://bioe.umd.edu/undergraduate/bs-ms-program/.

# Biocomputational Engineering Major

**Program Director:** Ian White, Ph.D
**Assistant Program Director:** Lan Ma, Ph.D

Biocomputational engineering brings together the field of bioengineering, a discipline grounded in fundamentals of physics, chemistry, and biology, with computation and data science, which enhances the value of all fields. The objective of the biocomputational engineering program is to provide a breadth of fundamentals in biology and quantitative problem solving while developing skills in computation and data science that can be applied to the modeling of complex biological systems and the analysis of complex biological data sets in order to create new knowledge from the molecular to organ to system levels, and to develop innovative processes for the prevention, diagnosis, and treatment of disease. The synthesis of bioengineering, computation, and data science gives the graduates unique capabilities to solve existing and emerging challenges of the modern medical world.

## Admission to the Major

Prior to being admitted to the Biocomputational Engineering major, students must complete the prerequisite math/science courses, lower-level General Education requirements (or an associate's degree), and a

total of 60 credits. Students are welcome to apply as transfer students from community college or four-year institutions. For more information regarding admission to the Biocomputational Engineering major, visit http://biocomp.umd.edu/admissions/.

## Program Educational Objectives

The BCE program provides students with a foundation in quantitative problem solving, engineering, and biology. In addition, the program provides students with data science skills. The students' educational outcomes position them for careers in data science, in particular in the biomedical and biotechnology fields.

Our graduates are grounded in fundamentals that will serve them throughout their professional careers. They will have an understanding of human behavior, societal needs and forces, the dynamics of human efforts, and the impact of those efforts on human health and our environment. With these underpinnings and abilities, we have defined three Program Educational Objectives we expect our graduates to attain. In 3-5 years after graduation, our graduates will:

1. Be successful in Biocomputational Engineering careers or post-graduate educational pursuits by applying scientific depth, technical skills, and knowledge gained through practical experiences.
2. Address the data-driven computational biomedical challenges facing society in both the near and long term by demonstrating an awareness of their field and an ability for lifelong learning.
3. Serve their profession, promote equity and justice through technology, and positively impact society by drawing upon a foundation of professional ethics.

## Student Learning Outcomes

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

# REQUIREMENTS

## Prior Study

Prior to being admitted to the Biocomputational Engineering major, students should have completed basic math/science/engineering courses, lower-level general education requirements (or an associate's degree from a Maryland public institution), and 60 credits.

| Course | Title | Credits |
|---|---|---|
| ENGL101 | Academic Writing | 3 |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| MATH241 | Calculus III | 4 |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | 3 |
| PHYS260 | General Physics: Electricity, Magnetism and Thermodynamics | 3 |
| PHYS261 | General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | 1 |
| ENES100 | Introduction to Engineering Design | 3 |
| CHEM135 | General Chemistry for Engineers | 3 |
| CHEM136 | General Chemistry Laboratory for Engineers | 1 |
| BSCI170 or BIOE120 | Principles of Molecular & Cellular Biology Biology for Engineers | 3 |
| MATLAB programming course -- e.g. BIOE241 or equivalent | | 3 |
| Lower-level general education requirements or A.A./A.S. degree from a Maryland public institution | | 25 |
| **Total Credits** | | **60** |

## Required Courses

| Course | Title | Credits |
|---|---|---|
| ENBC301 | Introduction to Biocomputational Engineering | 1 |
| ENBC311 | Python for Data Analysis | 3 |
| ENBC312 | Object Oriented Programming in C++ | 3 |
| ENBC321 | Machine Learning for Data Analysis | 3 |
| ENBC322 | Algorithms | 3 |
| ENBC331 | Applied Linear Systems and Differential Equations | 3 |
| ENBC332 | Statistics, Data Analysis, and Data Visualization | 3 |
| ENBC341 | Biomolecular Engineering Thermodynamics | 3 |
| ENBC342 | Computational Fluid Dynamics and Mass Transfer | 3 |
| ENBC351 | Quantitative Molecular and Cellular Biology | 3 |
| ENBC352 | Molecular Techniques Laboratory | 2 |
| ENBC353 | Synthetic Biology | 3 |
| ENBC425 | Imaging and Image Processing | 3 |
| ENBC431 | Finite Element Analysis | 3 |
| ENBC441 | Computational Systems Biology | 3 |
| ENBC491 | Senior Capstone Design in Biocomputational Engineering | 3 |
| Professional Writing Requirement | | 3 |
| Elective Courses | | 12 |
| **Total Credits** | | **60** |

## Elective Courses

Students are required to take four technical electives (12 credits). The courses must be selected from an approved list of engineering and biology courses; the list will be updated regularly by the program director. At least two of the elective courses must be from the category of engineering, mathematics, or programming, while at most two of the electives can be from the category of biology courses. The program will offer electives; at the same time, the program will arrange for

opportunities for electives outside the program, including USG programs offered by other universities.

| Course | Title | Credits |
|---|---|---|
| **Possible technical electives** | | **12** |
| ENBC403 | Research Methods in Biological Data Mining | |
| ENBC411 | (Advanced Programming in Python) | |
| ENBC413 | (Data Analysis with R) | |
| ENBC423 | Applied Computer Vision | |
| ENBC435 | (Numerical Methods) | |
| ENBC442 | (Computational Molecular Dynamics) | |
| ENBC443 | (Multiscale Simulation Methods) | |
| ENBC444 | (Modeling Protein Folding) | |
| ENBC445 | (Spatial Control of Biological Agents) | |
| ENBC455 | Bioinformatics Engineering | |

# GRADUATION PLANS

Click here (https://eng.umd.edu/advising/four-year-plans/) for roadmaps for graduation plans in the A. James Clark School of Engineering.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Bioengineering Major

**Program Director:** Ian White, Ph.D.

The Bachelor of Science in Bioengineering degree program at the University of Maryland is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Program Criteria for Bioengineering and Biomedical and Similarly Named Engineering Programs.

Bioengineering is a field rooted in physics, chemistry, mathematics, and the life sciences. These areas are applied in quantitative and integrative ways to approach problems in the biological systems, medical research, and clinical practice. The objective is to advance fundamental concepts, create knowledge from the molecular to organ to system levels, and develop innovative processes for the prevention, diagnosis, and treatment of disease. In short, bioengineering seeks to improve the health and life of humankind on many levels.

Bioengineers specialize in those products and processes made from, used with, or applied to biological organisms. In addition to engineering science and design, bioengineers study cell biology, physiology, bioinformatics, bioimaging, and biomechanics. The synthesis of engineering and biology gives bioengineers unique capabilities in our modern world.

For more information about the Bioengineering major, please visit http://bioe.umd.edu/undergraduate/.

## Program Educational Objectives

The undergraduate program in the Fischell Department of Bioengineering provides students with a broad and fundamental education relating engineering with the biological sciences. The program has focuses in biomedical devices, human health, and biotechnology. These focuses all contain components of fundamental sciences, design, and communications skills. The students' educational achievements all contribute to enabling a wide range of career paths after graduation.

Our graduates are grounded in fundamentals that will serve them throughout their professional careers. They will have an understanding of human behavior, societal needs and forces, the dynamics of human efforts, and the impact of those efforts on human health and our environment. With these underpinnings and abilities, we have defined three Program Educational Objectives we expect our graduates to attain. In 3-5 years after graduation, our graduates will:

1. Be successful in Bioengineering careers or post-graduate educational pursuits by applying scientific depth, technical skills, and knowledge gained through practical experiences.
2. Address the biomedical and biotechnological challenges facing society in both the near and long term by demonstrating an awareness of their field and an ability for lifelong learning.
3. Serve their profession, promote equity and justice through technology, and positively impact society by drawing upon a foundation of professional ethics.

## Student Learning Outcomes

Maryland bioengineers gain a broad-based education in which engineering approaches are used to understand and improve living systems and their environments. We educate students to excel in the field of bioengineering and carry out research, development, and commercialization of bioscience systems and tools that will improve the lives of people throughout the world. The specific student outcomes detailed by the Bioengineering Program are detailed below.

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.
8. Applying principles of engineering, biology, human physiology, chemistry, calculus-based physics, mathematics (through differential equations), and statistics.
9. Solving bio/biomedical engineering problems, including those associated with the interaction between living and non-living systems.

10. Analyzing, modeling, designing and realizing bio/biomedical engineering devices, systems, components, or processes.
11. Making measurements on and interpreting data from living systems.

# REQUIREMENTS

Following is the list of the course requirements for the Bioengineering Undergraduate Program. Students following the course template should be able to graduate in four years. Students will meet with their Faculty Advisors every semester to plan the schedule of courses for the subsequent semester.

| Freshman Year | Credits |
|---|---|
| ENES100 | 3 |
| MATH140 | 4 |
| CHEM135 | 3 |
| CHEM136 | 1 |
| BIOE120 | 3 |
| BIOE121 | 1 |
| MATH141 | 4 |
| PHYS161 | 3 |
| ENGL101 | 3 |
| General Education I | 3 |
| BIOE241 | 3 |
| | **31** |

| Sophomore Year | Credits |
|---|---|
| CHEM231 | 3 |
| CHEM232 | 1 |
| MATH241 | 4 |
| PHYS260 | 3 |
| PHYS261 | 1 |
| BIOE221 | 1 |
| BIOE232 | 3 |
| Biological Science Elective I[1] | 3 |
| ENES200 | 3 |
| ENES102 | 3 |
| MATH243 | 4 |
| BIOE246 | 3 |
| | **32** |

| Junior Year | Credits |
|---|---|
| BIOE331 | 3 |
| BIOE372 | 3 |
| BSCI330 | 4 |
| BIOE Foundational I[1] | 3 |
| BIOE Elective I[1] | 3 |
| BIOE340 | 4 |
| BIOE457 | 4 |
| BIOE Foundational II | 3 |
| General Education Requirement III | 3 |
| General Education Requirement IV | 3 |
| | **33** |

| Senior Year | Credits |
|---|---|
| BIOE485 | 3 |
| BIOE Elective II | 3 |
| BIOE Elective III | 3 |
| General Education Requirement V | 3 |
| Professional Writing Requirement | 3 |
| BIOE486 | 3 |
| BIOE Elective IV | 3 |
| Breadth Elective | 3 |
| Biological Science Elective II | 3 |
| General Education Requirement VI | 3 |
| | **30** |

**Total Credits 126**

[1] See http://bioe.umd.edu/undergraduate/electives/ for details on courses approved for BIOE Foundational courses and for BIOE, Biological Science, and Breadth electives.

Students pursuing the major should review the academic benchmarks established for this program. See http://4yearplans.umd.edu. Students will be periodically reviewed to ensure they are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

# GRADUATION PLANS

Click here (https://eng.umd.edu/advising/four-year-plans/) for roadmaps for graduation plans in the A. James Clark School of Engineering.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Global Engineering Leadership Minor

A.James Clark School of Engineering (ENGR)
1131 Glenn L Martin Hall
globalengr@umd.edu
http://eng.umd.edu/global/coursework/

**Program Lecturer:** Darren Pierre, Ph.D.

Engineering industry requires leadership to be exercised at all layers of an organization and today's engineering leaders need to lead with a global vision and be knowledgeable of how to effectively lead global teams. The minor will position students to be more competitive in the job market and help students develop the skills necessary to be an effective leader and manager.

The minor in global engineering leadership is designed to develop the skills necessary to lead with a global vision, work effectively with others to address social issues, and engineer solutions that improve communities and organizations.

The minor in Global Engineering Leadership consists of 16 credit hours. A maximum of six credits may also count toward the student's major, and no more than six credits may be taken at an institution other than the University of Maryland, College Park. All courses counted toward the minor must be completed with a "C-" or better. See the Requirements (p. 432) section for course requirements.

Contact the Office of Global Engineering Leadership (globalengr@umd.edu) or visit http://eng.umd.edu/global/coursework/ for more information.

# REQUIREMENTS

The minor in Global Engineering Leadership consists of 16 credit hours. A maximum of six credits may also count toward the student's major, and no more than six credits may be taken at an institution other than the University of Maryland, College Park. All courses counted toward the minor must be completed with a "C-" or better. The following courses are required:

| Course | Title | Credits |
|---|---|---|
| ENES317 | Introduction to Leadership in Engineering, Science, and Technology (DSSP) | 3 |
| ENES472 | Leading Global Teams and Engaging Across Cultures in Business, Engineering, and Technology (DVCC) | 3 |
| ENES424 | Engineering Leadership Capstone: Inclusive Leadership in Addressing Organizational & Societal Challenges | 3 |
| ENES138 | Equity and Inclusion in Engineering Design | 1 |
| or WEID138 | | |
| or WEID139 | Navigating Social Identity Difference through Intergroup Dialogue | |
| or CHSE328 | | |
| ELECTIVE | Global Perspectives Elective | 3 |
| ELECTIVE | Leadership Elective | 3 |
| **Total Credits** | | **16** |

Visit the website at eng.umd.edu/global/coursework (https://eng.umd.edu/global/coursework/) for more information.

# Materials Science and Engineering

**A. James Clark School of Engineering**
2135 Chemical and Nuclear Engineering Building
Phone: 301-405-5240
mseundergrad@umd.edu
http://mse.umd.edu

Materials Science and Engineering (MSE, MatSci) is a multidisciplinary field focused on developing and characterizing materials and materials systems that provide the underpinnings for advancing technology and science into the future. The development of many major advances in science and technology has been predicated on advances the underlying materials systems. MSE is leading the effort in continuing this growth for the benefit of society.

# PROGRAMS

## Major

- Materials Science and Engineering Major (p. 433)

# ADVISING

Students choosing Materials Science and Engineering as their major should contact Adaire Parker, Program Director, Room 1111, Chemical and Nuclear Engineering Building, at 301-405-5989 or mseundergrad@umd.edu. Adaire Parker can direct students to their advisor. Faculty advisors include Professors Lloyd, Al-Sheikhly, Cumings, Martinez-Miranda, Mo, Salamanca-Riba, and Takeuchi. Any questions about the program should be directed to mseundergrad@umd.edu.

# OPPORTUNITIES

## Undergraduate Research Experiences

The department strongly supports undergraduate students who wish to pursue research opportunities. The student should discuss their interest with their advisor or with Adaire Parker (Program Director) or Professor Isabel Lloyd (Undergraduate Program Director). See http://mse.umd.edu/research/.

## Internships

The department strongly encourages students to pursue internships as part of their undergraduate experience. They should discuss an internship with their advisor as they develop their academic plan. The department will forward information about internships to our undergraduate students. Students may also receive information on internships from the Clark School's Engineering Career Services Office. See http://eng.umd.edu/careers/.

## Co-op Programs

The Materials Science and Engineering program works with the A. James Clark School of Engineering Co-op Program. For more information, students should speak with their advisor regarding their interest in a co-op experience and consult the college's web page at http://eng.umd.edu/careers/students/internships/.

## Student Societies and Professional Organizations

### Undergraduate Societies

The Materials Engineering Society, or MatES, is a student society primarily for Materials Science and Engineering majors at the University of Maryland College Park. MatES is the University of Maryland's Material Advantage Student Chapter. It includes recognition by several professional societies including ASM International, The Minerals, Metals, and Materials Society (TMS), the American Ceramic Society (ACerS) and the Association for Iron and Steel (AIST). More information is available at http://mse.umd.edu/undergraduate/current-students/student-groups/.

### Materials Research Society (MRS)

The Materials Research Society (MRS), a professional research society for the field, has a student chapter in the department. The chapter organizes student research presentations, invites prospective employers for discussions, and collectively provides a forum for student-faculty interactions. More information is available by contacting Professor Salamanca-Riba at riba@umd.edu.

### Alpha Sigma Mu

Alpha Sigma Mu is the International Professional Honor Society for Materials Science and Engineering. Students with outstanding scholarship are nominated for membership and are eligible to be nominated for scholarships. If you have any questions, contact Professor Ray Phaneuf at phaneuf@umd.edu.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

Other scholarships are available through the A. James Clark School of Engineering's office of Undergraduate Recruitment and Scholarships Programs (https://eng.umd.edu/scholarships/). There are also research internships available for students to work with faculty in the department.

## Awards and Recognition

Each year, the department selects outstanding students for the following awards:

- Chair's Outstanding Senior Award
- Outstanding Materials Student Service and Advocacy Award
- Materials Science and Engineering Student Research Award

The professional materials oriented societies sponsor awards to recognize outstanding scholarship and undergraduate research.

- ASM International (http://www.asminternational.org)
- The Minerals, Metals, and Materials Society (TMS) (http://www.tms.org/TMSHome.html)
- American Ceramic Society (ACerS) (http://www.ceramics.org)
- Materials Research Society (MRS) (http://www.mrs.org)

All students enrolled in the Materials Science and Engineering program are encouraged to work with their advisor who in their junior and senior years will guide them towards nomination for these awards.

## Academic Programs and Departmental Facilities

The department's research facilities are available to undergraduates interested in pursuing research opportunities. Interested undergraduates are encouraged to work with a faculty member and their research team. Specific information on the facilities is available on the website: http://mse.umd.edu/research/labs/.

A partial list of facilities available to the students in the department include:

- The George E. Dieter, Jr. Materials Instructional Laboratory (http://www.memil.umd.edu)
- The Keck Laboratory for Combinatorial Nanosynthesis and Multiscale Characterization (http://www.nanocenter.umd.edu/labs/Keck/)
- Advanced Imaging and Microscopy Laboratory (AIMLab) (https://www.nanocenter.umd.edu/aimlab/)
- Laboratory for Advanced Materials Processing (LAMP) (http://www.mse.umd.edu/LAMP/)
- Laboratory for Plasma Processing of Materials
- Functional Macromolecular Laboratory (http://fml.umd.edu)
- The FabLab Micro and Nano Fabrication Laboratory run by the University of Maryland NanoCenter (https://nanocenter.umd.edu/fablab/)

# Materials Science and Engineering Major

**Undergraduate Program Director:** Isabel K. Lloyd, Ph.D.

The Bachelor of Science in Materials Science and Engineering degree program at the University of Maryland is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Materials Engineering Program Criteria.

The development, production and use of novel materials has become a major issue in all fields of engineering. Materials which are strong and light at the same time are needed for space structures; faster electro-optical switching materials will result in improved mass communications; and stronger high temperature plastics would improve the efficiency of transportation systems. Students will have the opportunity to work with faculty and industry on complex problems through projects, internships, and research and co-op experiences. A wide variety of careers are open to graduates of this program ranging from production and quality control in the traditional materials industries to the molecular construction of electronic materials in ultra-clean environments, and to the applications of materials in electronic packages. The application of materials to solve environmental, biomedical, energy, and reliability problems are also career options.

Students majoring in Materials Science and Engineering will receive a Bachelor of Science upon successful completion of the program. Courses offered by this department may be found under the acronym ENMA.

## Program Educational Objectives

The mission of the Materials Science and Engineering Department at the University of Maryland is to provide a quality engineering education, research at the forefront of the field, and leadership to the Materials and Engineering communities. Our educational programs will have the following objectives:

- Graduates will leverage their educational experience to advance in their chosen careers.
- Graduates will use their materials science and engineering education to define and solve engineering, science and societal problems.
- Graduates will apply science, math, information science, and engineering principles to solve materials engineering and other problems in their careers.
- Graduates will use design principles to develop new materials, systems and characterization approaches and demonstrate a commitment to lifelong learning.

The department will support our students with an educational program that has sufficient breadth in both fundamental and specialized engineering topics to ensure our graduates meet the current and future needs of society. In the area of research, the department conducts a range of scientific research programs and establishes partnerships with government and industry, both in Maryland and elsewhere, to accomplish this goal.

## Student Learning Outcomes

The overall educational outcomes of the Materials Science and Engineering Program are to provide undergraduate engineering students:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

# REQUIREMENTS

Requirements for the Materials Science and Engineering major include thorough preparation in mathematics, chemistry, physics, and engineering science as well as the required university general education requirements. All students will be required to select an area of specialization, an upper-class science elective, and two technical electives. A minimum of 122 credits is required for a bachelor's degree. A sample program follows:

**Freshman Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| CHEM135 | 3 | MATH141 | 4 |
| ENES100 | 3 | ENMA165 | 3 |
| MATH140 | 4 | PHYS161 | 3 |
| ENGL101 | 3 | GenEd | 3 |
| CHEM136 | 1 | Oral Communication | 3 |
| ENMA180 | 1 | | |
| | **15** | | **16** |

**Sophomore Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| MATH241 | 4 | MATH246 | 3 |
| PHYS260 | 3 | PHYS270 | 3 |
| PHYS261 | 1 | PHYS271 | 1 |
| ENMA300 | 3 | Select one of the following:[1] | 3-4 |
| ENES200 or ENEE 200 | 3 | CHEM231 & CHEM232 | |
| | | CHEM481 | |
| | | ENMA301 | 3 |
| | | GenED | 3 |
| | **14** | | **16-17** |

**Junior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENMA312 (Or Upper Level Science Elective) | 3 | ENMA312 (Or Upper Level Science Elective) | 3 |
| ENMA362 | 3 | ENMA465 | 3 |
| ENMA460 | 3 | ENMA461 | 3 |
| Scholarship in Practice[2] | 3 | Specialization Elective | 3 |
| Specialization Elective | 3 | ENMA470 | 3 |
| | **15** | | **15** |

**Senior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENMA441 | 3 | Technical Elective (at or above 300 level) | 3 |
| ENMA471 | 3 | Specialization Elective | 3 |
| Specialization Elective | 3 | Specialization Elective | 3 |
| ENMA487 | 1 | GenED[2] | 3 |
| Professional Writing | 3 | ENMA490 | 3 |
| Technical Elective (at or above 300 level) | 3 | | |
| | **16** | | **15** |

**Total Credits 122-123**

1 CHEM231/CHEM232 is required for students focusing on polymers and biomaterials.

2 All students must complete two Distributive Studies courses that are approved for I-series courses. The Understanding Plural Societies (UP) and Cultural Competence (CC) courses may also fulfill Distributive Studies categories.

## Other Requirements for the Major

Students majoring in Materials Science and Engineering must follow the academic policies developed by the A. James Clark School of Engineering. Students must achieve a "C-" or better on all coursework in their major (including required non-engineering courses such as chemistry and physics). Students must achieve a minimum cumulative GPA of 2.0 and completion of all degree requirements to graduate. Students are encouraged to visit the Department webpage for a curriculum guideline. A multi-year academic plan will be developed in conjunction with their advisor. All Materials Science and Engineering students must be mentored by three different faculty members, preferably during their sophomore and junior years (once per semester) to assist them in choosing their specialization area and to plan for post graduation.

# GRADUATION PLANS

Click here (https://eng.umd.edu/advising/four-year-plans/) for roadmaps for graduation plans in the A. James Clark School of Engineering.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Mechanical Engineering

**A. James Clark School of Engineering**
2181 Glenn L. Martin Hall
Phone: 301-405-2410
ENMEundergrad@umd.edu
http://enme.umd.edu

Mechanical Engineering includes the study of the following areas:

- Design and Reliability of Systems,
- Thermal, Fluid, and Energy Sciences
- Mechanics, Materials, and Manufacturing.

In addition, to the learning opportunities provided through a vibrant curriculum of undergraduate and graduate offerings, students are also provided extensive experiential learning opportunities through the Terps Racing Program (https://www.facebook.com/terpsracing/), Robotics at Maryland (https://robotics-at-maryland.pages.umd.edu/), and other competition teams, and undergraduate research experiences. Students are also provided opportunities to make a difference worldwide with programs such as Engineers Without Borders (http://www.ewb.umd.edu).

## PROGRAMS

### Major

- Mechanical Engineering Major (p. 435)

### Minor

- Nuclear Engineering Minor (p. 437)

## ADVISING

Mechanical engineering students are required to meet with a departmental adviser each semester prior to registering for the following term. Mechanical Engineering has a team of faculty and staff academic advisors. For more information, please contact the department's Undergraduate Advising Office, 2168-2188 Glenn L. Martin Hall, at 301-405-5310, or review resources including office hours and the appointment process, on-line at http://meugrad.umd.edu.

## OPPORTUNITIES

### Co-op Programs

Participation in the Cooperative Education Program (https://eng.umd.edu/careers/students/internships/) through the Engineering Career Services Office (https://eng.umd.edu/careers/) is encouraged. See Clark School of Engineering under Colleges and Schools on this site.

### Honors Program

The Engineering Honors Program (https://eng.umd.edu/engineering-honors-program/) is administered through the Clark School of Engineering.

Individual honors and awards are presented based on academic excellence and extracurricular activities.

### Student Societies and Professional Organizations

Student chapters of professional societies include the American Society of Mechanical Engineers (ASME), American Nuclear Society, Engineers without Boarders (EWB), Out in Science, Technology, Engineering and Mathematics (oSTEM), the Society of Automotive Engineers, the Mechanical Contractors Association, the Association for Energy Engineers (AEE) and the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE). The mechanical engineering honor society is Pi Tau Sigma. Information regarding these societies may be obtained at 2184 Glenn Martin Hall.

### Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

A limited amount of scholarship aid is available through the Department of Mechanical Engineering. Information may be obtained in the Mechanical Engineering Undergraduate Advising Office. Information about Clark School of Engineering scholarships and Department of Mechanical Engineering scholarships is also available online at http://eng.umd.edu/scholarships/.

# Mechanical Engineering Major

**Program Director:** Patrick McCluskey, Ph.D.

The Bachelor of Science in Mechanical Engineering degree program at the University of Maryland is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Mechanical Engineering Program Criteria.

Mechanical engineering is the broadest of the engineering disciplines. It is concerned with the design, manufacture, and operation of a wide range of components, devices, or systems. The field comfortably encompasses applications ranging from micro-mechanical surgical systems to internal combustion engines for Formula One racecars or giant turbines for renewable energy wind farms. A fitting adage for the discipline would be ***turning ideas into reality.***

Graduates of the program will possess the skills and the knowledge base critical for success in today's marketplace, with the problem solving expertise and flexibility necessary to adapt as technology and society evolve. Students must be proficient in the traditional fundamentals of mechanical engineering such as solid and fluid mechanics, thermodynamics, transfer processes, materials engineering, electronic instrumentation and measurements, controls, and design. However, they will also explore new/emerging areas through a variety of electives such as smart structures, machine learning, additive manufacturing, Lean Six Sigma, and medical robotics.

Attributes such as teamwork, ethics, and leadership are emphasized in the curriculum. The program is designed to integrate out-of-classroom experiences, helping students explore career options and apply what they are learning in the real world. Students can work with faculty on research projects, serve as teaching fellows, pursue leadership opportunities through clubs, and participate in national competitions such as the Formula SAE/Baja SAE teams or the DOE Solar Decathlon. The flexibility

of the curriculum, and frequent offering of required courses, allows many of our students to participate in study abroad or cooperative education opportunities.

Courses offered by this department may be found under the following acronym: ENME

# Program Educational Objectives

1. The mission of the Department of Mechanical Engineering at the University of Maryland is to provide a quality education, to conduct strong research programs, to foster a close partnership with industry and government, and to provide related service to the campus community and the community at large. The mission shall be guided by a commitment to continuous improvement in the overall quality of teaching, research, and service in a diverse, equitable, and inclusive environment.
2. A major focus of the Department's activities is to provide quality engineering education with sufficient scope to include the basic and specialized engineering training necessary for the current and emerging needs of a more diverse and inclusive society.
3. The Department has related responsibility to contribute to the advancement of knowledge by conducting research at the cutting edge of science and technology. Since science and technology are rapidly advancing, the Department also has a professional responsibility to provide continuing education so the practicing engineer can remain effective.
4. The Department faculty and administration also see as part of the mission, an obligation to serve the needs of the campus community and the community at large in the spirit of collegial cooperation.
5. Graduates will provide value in their chosen career path, whether for mastery of the disciplines central to mechanical engineering or for the broader analytical skills, critical thinking, innovation and/or creative abilities provided by their engineering education.
6. Graduates will utilize skills in teamwork, leadership, and communication gained in their program of study, and act in a professional, equitable, inclusive, and ethical manner in the area in which they apply their degree.
7. Graduates will show a commitment to on-going professional development, whether through graduate study, research programs, training courses, or leadership opportunities thereby adapting to an evolving, competitive, diverse global work environment.
8. Graduates will utilize the skills developed in their program of study to engender a diverse and inclusive work environment in the area in which they apply their degree, and to be sensitive to issues of social and environmental responsibility in the conduct of their work.

# Student Learning Outcomes

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

# REQUIREMENTS

**Freshman Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| MATH140 | 4 | MATH141 | 4 |
| CHEM135 | 3 | PHYS161 | 3 |
| ENGL101 | 3 | ENES102[1] | 3 |
| ENES100[1] | 3 | ENME272 | 2 |
| General Education Requirements | 3 | General Education Requirements | 3 |
| | **16** | | **15** |

**Sophomore Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENME202 | 3 | MATH246 | 3 |
| MATH241 | 4 | PHYS270 & PHYS271 | 4 |
| PHYS260 & PHYS261 | 4 | ENES220 | 3 |
| ENES221 | 3 | ENES232 | 3 |
| ENES200 or ENEE 200 | 3 | General Education Requirements | 3 |
| | **17** | | **16** |

**Junior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENME331 | 3 | ENME332 | 3 |
| ENME350 | 3 | ENME351 | 3 |
| ENME382 | 3 | ENME361 | 3 |
| ENME392 | 3 | ENME371 | 3 |
| General Education Requirements | 3 | Professional Writing Requirement | 3 |
| | **15** | | **15** |

**Senior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ENME472 | 3 | ENME462 | 3 |
| ENME400 | 3 | Electives: Technical Electives | 9 |
| Electives: Technical Electives | 6 | General Education Requirements | 3 |
| General Education Requirements | 3 | | |
| | **15** | | **15** |

**Total Credits 124**

[1] Can be taken 1st or 2nd semester

**A minimum of 120 credits are required for a degree.**

**Sample Elective Topics**

- Waste Technology
- Bio-Inspired Robotics
- Computer-Aided Design & Manufacturing
- Packaging of Electronic Systems
- Energy Conversion
- Engineering Management
- Environmental Engineering
- Flexible Macro-electronics
- Automotive Design
- Micro-nano Robotics
- Manufacturing
- Medical Robotics
- Fiber Optics
- Micro-Electro-Mechanical Systems
- Nuclear Reactor Engineering

## GRADUATION PLANS

Click here (https://eng.umd.edu/advising/four-year-plans/) for roadmaps for graduation plans in the A. James Clark School of Engineering.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Nuclear Engineering Minor

**Mechanical Engineering (ENME)**
2181 Engineering Classroom Building
Phone: 301-405-0279
http://enme.umd.edu/undergraduate/degrees/minor-nuclear-engineering/

Contact Dr. Patrick McCluskey (mcclupa@umd.edu) for further information.

The minor in Nuclear Engineering provides the engineering student with the understanding of nuclear engineering and its application to many different fields, such as power generation, reactor operation, and industrial uses. Students in the minor will learn the fundamentals of nuclear reactor engineering, radiation interactions and measurement, power plant design concepts, and reactor safety. The minor is open to any student in the Clark School of Engineering.

## REQUIREMENTS

To successfully complete the minor in nuclear engineering, a student must complete a total of 15 credits (5 3-credit courses). All courses must be completed with a grade of "C-" or higher. A maximum of two of the required five courses can be used to satisfy requirements of the student's major (with approval of the major department).

| Course | Title | Credits |
|---|---|---|
| All students pursuing the minor will be required to take the following four courses: | | |
| ENME430 | Fundamentals of Nuclear Reactor Engineering | 3 |
| ENME431 | Nuclear Reactor Systems and Safety | 3 |
| ENME432 | Reactor and Radiation Measurements Laboratory | 3 |
| ENRE447 | Fundamentals of Reliability Engineering | 3 |
| Nuclear Engineering Elective [1] | | 3 |
| **Total Credits** | | **15** |

[1] The elective course should be related to nuclear engineering and must be approved by the minor advisor.

Students who fulfill minor requirements will receive a notation on their official transcript.

# Nanoscale Science and Technology Minor

**Maryland NanoCenter**
Kim Engineering Building
http://nanocenter.umd.edu/education/nano-minor/

**Program Director:** Ray Phaneuf, Ph.D.

Continued growth in the field of nanometer scale science and technology (NS&T) has led in the past several years to many technological advances in devices and materials structured at the nanometer scale. The Interdisciplinary Minor Program of Study in Nanoscale Science and Technology is intended to prepare participating students for a career in this rapidly developing field. This program draws upon the considerable expertise in nanoscience at the University of Maryland, in departments distributed among two schools: The Clark School of Engineering, and the College of Computer, Mathematics and Natural Sciences. Students take courses in Fabrication/Synthesis and Characterization, which emphasize the experimental side of NS&T, as well as Fundamental Science and Specialization Electives, which teach the underlying principles and directions, and include underlying theory and the motivations for NS&T.

Visit the website http://mse.umd.edu/undergraduate/degrees/minor-nano/ for more information.

## REQUIREMENTS

- The minor requirement will consist of a total of five courses (at least 15 credits).
- At least two of the courses (6 credits) must be from the list of NanoFabrication/Nanosynthesis and/or NanoCharacterization electives.
- At least two of the courses (6 credits) must be from the list of Fundamental Science and/or Nanoscience Electives. At least one of these must be listed as a NanoApplication / Specialization elective.
- Up to two courses (6 credits) may be double counted, i.e. used both toward satisfying the requirements of the major and the NS&T minor.
- Three of the courses (9 credits) must be from outside the individual major. Cross listed courses (e.g. ENMA460/PHYS431) which are offered by the major department do not qualify as being outside the major.

- At least three of the courses (9 credits) must be at the 400 level or above.
- No more than two courses (6 credits) from any one department will be credited toward the NS&T minor.
- A grade of "C-" or above is required in all courses to be credited toward the NS&T minor.
- Students wishing to participate in the NS&T minor must declare participation formally. Declaration of participation in the NS&T minor must follow a meeting with the individual department representative to the NS&T committee who will help the student develop a program of courses suitable for the minor and a schedule for taking those courses. Students from outside participating departments will consult with one of the MSE representatives to develop a program of courses and declare participation.

# Robotics and Autonomous Systems Minor (ENGR)

**Center Director:** Derek Paley, Ph.D.

For any questions, please contact robotics-minor@umd.edu.

The Robotics and Autonomous Systems (RAS) minor is open to students majoring in Aerospace Engineering, Electrical and Computer Engineering, Mechanical Engineering, and Computer Science. The minor takes a multidisciplinary approach to robotics in which students gain knowledge about the design, control, programming, and integration of robotics and autonomous systems. With an emphasis on hands-on experiences, students will gain practical skills through coursework, group projects, and research. Students will have the opportunity to participate as peer mentors and tutors. The minor program will also include regular interactions with academic, corporate, and/or governmental leaders in robotics, who will serve as both mentors and professional contacts.

## Student Learning Outcomes

1. Students will demonstrate the ability to apply advanced technical skills required to approach and resolve problems in the Robotics and Autonomous System (RAS) through upper-level RAS-related coursework in computer science and engineering disciplines.
2. Students will be able to apply the broad interdisciplinary aspects of RAS, such as the design, control, programming, and integration of complex robotic systems.
3. Students will obtain hands-on experience and demonstrate problem-solving skills in robotics through advanced coursework, experiential learning, and research.
4. Students will gain a sophisticated understanding of the range of professional opportunities available in RAS as a result of first-hand interactions with RAS faculty and professionals.

## REQUIREMENTS

## Prerequisites

| Course | Title | Credits |
|---|---|---|
| **Robotics and Autonomous Systems (RAS) Minor Prerequisites** | | |
| MATH246 | Differential Equations for Scientists and Engineers | |
| or ENES221 | Dynamics | |
| One of the following: | | |
| CMSC131 | Object-Oriented Programming I | |
| ENME202 | Computing Fundamentals for Engineers | |
| ENAE202 | Computing Fundamentals for Engineers | |
| ENEE150 | Intermediate Programming Concepts for Engineers | |

## Requirements

A minimum grade of C- or better is required for all minor and all prerequisite courses. A maximum of 2 courses may be used to satisfy the requirements of both a major and a minor.

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | **12** |
| ENME480 | Introduction to Robotics | |
| ENAE450 | Robotics Programming | |
| ENEE467 | Robotics Project Laboratory | |
| CMSC477 | Robotics Perception and Planning | |
| **Supporting Math Course (Required. Select one course. Must be completed prior to enrollment in CMSC477)** [1] | | **3-4** |
| MATH240 | Introduction to Linear Algebra | |
| MATH340 | Multivariable Calculus, Linear Algebra and Differential Equations I (Honors) | |
| MATH341 | Multivariable Calculus, Linear Algebra, Differential Equations II (Honors) | |
| MATH461 | Linear Algebra for Scientists and Engineers | |
| ENEE290 | Introduction to Differential Equations and Linear Algebra for Engineers | |
| **Electives (select two courses):** | | **6** |
| Course options will depend on the student's academic major and being able to meet course requirements/restrictions set by each Department. Other electives may be available. Contact minor advisor for assistance. | | |
| ENME400 | Machine Design | |
| ENME410 | Design Optimization | |
| ENME413 | Bio-Inspired Robotics | |
| ENME435 | Remote Sensing Instrumentation | |
| ENME441 | Mechatronics and the Internet of Things | |
| ENME461 | Control Systems Laboratory | |
| ENME467 | Engineering for Social Change | |
| or ENES467 | Engineering for Social Change | |
| ENME444 | Assistive Robotics | |
| ENME476 | Mircoelectromechanical Systems (MEMS) I | |
| ENEE440 | Microprocessors | |
| ENEE460 | Control Systems | |
| ENEE461 | Control Systems Laboratory | |
| ENEE425 | Digital Signal Processing | |
| ENEE426 | Communication Networks | |
| ENEE408 | Capstone Design Project (ENEE408I Capstone Autonomous Robotics) | |
| ENAE380 | Flight Software Systems | |
| ENAE403 | Aircraft Flight Dynamics | |
| ENAE432 | Control of Aerospace Systems | |
| ENAE441 | Space Navigation and Guidance | |
| ENAE488 | Topics in Aerospace Engineering (ENAE488O Introduction to Autonomous Multi-Robot Swarms) | |
| CMSC421 | Introduction to Artificial Intelligence | |

| | | |
|---|---|---|
| CMSC422 | Introduction to Machine Learning | |
| CMSC426 | Computer Vision | |
| CMSC427 | Computer Graphics | |
| CMSC451 | Design and Analysis of Computer Algorithms | |
| CMSC498 | Selected Topics in Computer Science (CMSC498E Robotics) | |
| **Total Credits** | | **21-22** |

[1] Students may waive this requirement if they complete the course for another minor or major.

# Science, Technology, Ethics and Policy Minor (ENGR)

stepminor@umd.edu
http://spp.umd.edu/your-education/undergraduate/minors/science-technology-ethics-and-policy-step-minor/

**Program Director:** David Tomblin, Ph.D.

The minor in Science, Technology, Ethics and Policy (STEP) explores the powerful social, ethical, and political relationships that drive research and innovation. The program delves into the challenges of living and innovating in a world where emerging science and technologies are becoming increasingly interconnected, pervasive, and powerful. The STEP minor offers students the knowledge and analytical skills to understand and assess the complex interactions among science, technology, policy and ethics, providing students the opportunity to explore the ways that scientific practice and technological development are embedded in social, cultural, humanistic, and political systems.

STEP welcomes students from all majors who are interested in understanding how we can responsibly maximize the societal benefits of scientific inquiry and technological innovation. The program's primary goal is to give students analytical skills that help connect science and technology to broader social needs. Coursework emphasizes the importance of interdisciplinary modes of inquiry to generate new scientific knowledge and technologies, and to understanding the ethical considerations and social benefits that flow from them.

Electives are grouped in three concentrations, each linked to a learning outcome. Students can go deep in one concentration or choose across groupings. The end product of the program is a capstone research project of the student's own choosing, which is developed under faculty mentorship. At the onset of the capstone course, students will complete an assignment that allows them to articulate how their elective courses have shaped their understanding of science, technology, ethics and policy and how it informs their choice of capstone project.

## Minor concentration areas:

**Social, ethical and policy implications**: This concentration explores the contemporary societal implications of science and technology. These courses ask students to think about the role science and technology have played in creating local and global social and environmental crises and what science and technology can do to help solve them.

**Science and technology development**: This concentration focuses on cultural, legal, organizational, and institutional forces that have shaped science and technology. It asks students to think about what causes knowledge production and technical practices to change over time and how these changes can improve implementation going forward.

**Information economy**: This concentration focuses on how the information economy has shaped scientific and technological practices. Students are asked to think about society's evolving relationships with information as a driving force in the private and public sector.

## Student Learning Outcomes

1. Articulate and explore the social, ethical, and policy implications of how scientific ideas emerge and technologies are designed, developed, and used (Social, ethical and policy implications concentration)
2. Identify political and legal contexts governing science and technology (Social, ethical and policy implications concentration)
3. Recognize lessons from the historical contingency and legacy of scientific knowledge and technological development (Science and technology development concentration)
4. Synthesize broad implications of the "information economy" for science, technology, and society (Information economy concentration)
5. Interpret the rules, customs, and cultural practices that are the foundation for scientific and technological institutions. (Science and technology development concentration)

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Required Courses (2 classes)** | | **6** |
| ENES240 | Ethical, Policy and Social Implications of Science and Technology | 3 |
| ENES440 | Science, Technology, Ethics, and Policy: Minor Program Capstone | 3 |
| **Electives (3 classes)** | | **9** |
| For a comprehensive list of electives see website. [1] | | |
| **Total Credits** | | **15** |

[1] Six credits must be at the 300-400 level.

http://spp.umd.edu/your-education/undergraduate/minors/science-technology-ethics-and-policy-step-minor/

# Technology Entrepreneurship and Corporate Innovation Minor

**Director:** James Green, Ph.D.

A firm grasp of the entrepreneurial process benefits every person engaged in developing innovations, from startups to established companies and organizations. The goal of the Minor in Technology Entrepreneurship and Corporate Innovation is to infuse students with that knowledge and its accompanying skills. Armed with an entrepreneurial mindset and skill set, innovators can better drive economic growth by launching successful ventures and bringing new products and services to market. Students earn the minor by completing coursework that may include entrepreneurial opportunity analysis, strategies for managing innovation, marketing high-technology products, financing and leading new ventures, and international entrepreneurship.

For details and contact information, visit http://mtech.umd.edu/educate/minor/.

# REQUIREMENTS

The 15-credit undergraduate minor is completed from a subset of 17 courses. At least nine credits must be completed at the 400-level to earn the minor. While course options are available, application of 100 and 200-level courses is limited to a total of six credits.

| Course | Title | Credits |
|---|---|---|
| ENES140 | Discovering New Ventures | 3 |
| ENES210 | Entrepreneurial Opportunity Analysis and Decision-Making in 21st Century Technology Ventures | 3 |
| ENES460 | Fundamentals of Technology Start-Up Ventures | 3 |
| ENES461 | Advanced Entrepreneurial Opportunity Analysis in Technology Ventures | 3 |
| ENES462 | Marketing High-Technology Products and Innovations | 3 |
| ENES463 | Strategies for Managing Innovation | 3 |
| ENES464 | International Entrepreneurship and Innovation | 3 |
| ENES466 | Leading and Financing the Technology Venture | 3 |
| ENES471 | Legal Aspects of Entrepreneurship | 3 |
| HEIP143 | Foundations of Entrepreneurship and Innovation | 1 |
| HEIP240 | Exploring International Entrepreneurship and Innovation | 3 |
| HEIP241 | EIP Capstone: Creating Enterprise with Social Impact | 2 |
| SMLP470 | Fundamentals of Entrepreneurial Ventures | 3 |
| SMLP471 | Entrepreneurial Finance | 3 |
| SMLP472 | Strategies for Innovation & Entrepreneurship | 3 |
| SMLP473 | Consulting in Tech Entrepreneurship | 3 |
| SMLP474 | Essentials of Negotiations and Marketing for Entrepreneurs (Essentials of Negotiations and Marketing for Entrepreneurs) | 3 |

# College of Information

**Notice of Addendum:** This page has been updated effective Fall 2024. See Addenda to this Catalog (p. 1110) for details.

0216 Hornbake Library, North Wing
Phone: 301-405-2038
infosci@umd.edu
http://ischool.umd.edu

**Dean:** Keith Marzullo, Ph.D.
**Associate Deans:** Renee Hill, Ph.D. (Interim), Katherine Izsak, Ph.D., Wayne Lutters, Ph.D., Mega Subramaniam, Ph.D., Susan Winter, Ph.D.

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The University of Maryland (UMD) College of Information (INFO) is a leading research and teaching college in the field of information science. At INFO, students are prepared to be tomorrow's thought leaders in applications of information and technology for social good – fostering access to information, improving information interfaces, and expanding how information is used in an evolving world. We offer undergraduate programs in information science, social data science, and technology and information design. We also offer several combo bachelor's-master's options in which students graduate with both degrees in five years. Our students learn from expert faculty, known for their research and scholarship, and top industry professionals who join us as prestigious lecturers. The undergraduate programs at INFO are known for their culture of diversity and inclusion. Across the college, you'll join 2200+ students from 52 countries (35% from underrepresented groups, 42% female). Located just outside of Washington, D.C., our students have unmatched internship and career opportunities.

# ACADEMIC PROGRAMS

## Majors

- Information Science Major (p. 444)
- Social Data Science Major (INFO) (p. 446)
- Technology and Information Design Major (p. 449)

## Minors

- Information Risk Management, Ethics, and Privacy Minor (p. 443)
- Science, Technology, Ethics and Policy Minor (INFO) (p. 445)
- Technology Innovation Leadership Minor (p. 450)

# ADVISING

**Notice of Addendum:** This page has been updated effective Fall 2024. See Addenda to this Catalog (p. 1110) for details.

Advisors will help you make informed decisions and feel confident about your plans, which will assist you in meeting your program goals. Your advisor will assist in helping you understand your degree requirements and your options, but you make the decisions, you are in charge of your education!

Advising is mandatory for all new InfoSci students and is available both virtually and in-person. Students have access to an advisor during their remaining time in the program, and are encouraged to complete a senior audit roughly a year out from graduation. This review will ensure students are progressing through the major in a satisfactory manner. We encourage all InfoSci students to schedule regular advising meetings and make sure you are on track to meet your academic and professional goals.

For more information on the program, including courses and policies, please visit the the Student Services website (https://ischool.umd.edu/academics/student-services/) for undergraduate student services. For any other inquiries please contact the iSchool Undergraduate Student Services Office at ugadvising.ischool@umd.edu.

# OPPORTUNITIES

**Notice of Addendum:** This page has been updated effective Fall 2024. See Addenda to this Catalog (p. 1110) for details.

## Undergraduate Research Experiences

Opportunities for undergraduate research experience in the iSchool's research centers become available from time to time. Participation in an on- or off-campus internship, co-op, or other experiential learning opportunity is strongly encouraged. See the Information Science program staff for information on performing research in an iSchool center or lab and contact the Campus Career Services office for assistance in obtaining off-campus positions or experiences.

## Internships

Students are strongly encouraged to complete at least one internship during their course of study. The iSchool hosts an internship and networking fair in fall and spring semesters to help students find internship sites. Students should also consult the Career Center (http://www.careercenter.umd.edu) for additional internship opportunities.

The iSchool also offers a summer internship course that allows students to partner critical reflection on professional development with an existing internship opportunity.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information visit their website (https://financialaid.umd.edu/).

Scholarships administered by the iSchool for undergraduate students include:

### User Information Needs & Assessment Award

The User Information Needs & Assessment Award is a merit-based scholarship given to current InfoSci students who have taken INST352 and earned at least an A-. Students interested in this award must clearly articulate how the study of information behavior fits within their career goals. Preference will be given to students with demonstrated financial need. This scholarship was established in 2023 to return all royalties earned on the INST352 textbook (Understanding Human Information Behavior: When, How, and Why People Interact with Information) authored by iSchool instructors Beth St. Jean, Ursula Gorham, and Elizabeth Bonsignore to one or more outstanding InfoSci students.

### Westin Scholar

The Westin Scholar is a merit-based scholarship funded by the International Association of Privacy Professionals (IAPP). It is given to an advanced InfoSci, SDSC, or InfoDesign student interested in a career in information privacy. Students interested in applying for this award

must clearly state their post-baccalaureate educational and/or career goals and how those goals intersect with privacy issues. Students should highlight privacy-related courses they have completed, and co-/extra-curricular engagement in privacy topics or activities.

The award also includes 2 years of membership with the IAPP, 3 complimentary exams for IAPP certifications (CIPP, CIPM, CIPT), and unlimited access to online training for the recipient's selected IAPP certification programs.

### The Turner Family Optimal Solutions Endowed Scholarship

This is a merit-based financial award given to InfoSci students who are able to demonstrate an application of information science to economics, environmental studies, public policy or other social science disciplines and provide a compelling case for how this financial assistance will aid them in obtaining their degree. Preference will be given to InfoSci students who are completing a dual major, minor, certificate, or coordinated study with the College of Behavioral and Social Sciences; but all students are encouraged to apply.

## Awards and Recognition

### Dean's Award for an Outstanding iSchool Project

The Dean's Award for an Outstanding iSchool Project will be presented to an iSchool student or a group of students (which includes at least one iSchool student) for an outstanding design or development project completed for an iSchool course. Projects must be nominated by a faculty member(s) and must represent outstanding work that furthers understanding by offering new insights into development or design or displays excellence in applying existing state-of-the-art methods and knowledge.

### Laurence B. Heilprin Award

The Laurence B. Heilprin Award will be presented to an iSchool student or a group of students (which includes at least one iSchool student) for an outstanding paper on a topic in library and information science which has been written for an iSchool course. Papers must be nominated by faculty and must represent outstanding work that furthers understanding by offering new insights, incorporating original research, and/or analyzing existing information in new ways.

### Dr. Joan Giesecke Best Student Paper on Health Informatics Award

The Dr. Joan Giesecke Best Student Paper on Health Informatics Award will be presented to a graduate student or a group of graduate students for an outstanding paper which has been written for an iSchool course and which focuses on any aspect(s) of Health Informatics. The iSchool defines Health Informatics broadly, including any work that focuses on health information management; health information technologies; health data analytics; health-related information needs or behaviors; health librarianship, etc. Papers must be nominated by faculty and must represent outstanding work that furthers understanding by offering new insights on issues relating to Health Informatics, incorporating original research, and/or analyzing existing information in new ways.

### Dean's Award for Outstanding Undergraduate Research Achievement

The Dean's Award for Outstanding Undergraduate Research Achievement will be presented to an undergraduate student or a group of undergraduate students for an outstanding research paper or project that has been completed for an iSchool course. Projects/papers must be nominated by a faculty member(s) and must represent outstanding work that furthers understanding by offering new insights into development or design or displays excellence in applying existing state-of-the-art methods and knowledge.

## Special Advantages and Facilities

At the iSchool, faculty and students are exploring how people access and use information. From developing smart city technology to creating new archival methods, we seek to improve the individual experience as well as to foster connected communities. At our research centers and labs, we enable discovery, creativity, problem solving, and fun while tackling real-world challenges and developing impactful solutions.

The college operates six research centers: the Center for Advanced Study of Communities and Information (CASCI), the Computational Linguistics and Information Processing Lab (CLIP), the Center for Archival Futures (CAFE), the Human-Computer Interaction Lab (HCIL), the Information Policy and Access Center (iPAC), the Trace Research and Development Center.

iSchool faculty and doctoral students also participate in or have affiliations with the University of Maryland Institute for Advanced Computer Studies (UMIACS), and the Maryland Institute for Technology in the Humanities (MITH) as well as the Departments of Computer Science, English, and Sociology, the Robert H. Smith School of Business, and the College of Education.

## Research Units

The iSchool is home to a number of research centers and labs:

### Computational Linguistics and Information Processing (CLIP)

Phone: 301-405-6722
http://wiki.umiacs.umd.edu/clip/

**Director:** Dr. Vanessa Frias-Martinez

The Computational Linguistics and Information Processing Lab (CLIP) at Maryland creates and evaluates systems that allow computers to effectively and efficiently use human language – together with large-scale information networks – to perform tasks such as search, translation, summarization and ontological reasoning. It is a part of the broader language science initiative at Maryland and of the University of Maryland Institute for Advanced Computer Studies (UMIACS).

### Center for Archival Futures (CAFe)

cafe-info@umd.edu
http://cafe.ischool.umd.edu

The Center for Archival Futures (CAFe) develops and disseminates human-centered approaches to creating the systems, processes, and institutions which enable the use of and care for digital objects and data over time. We take a holistic view of archives and digital curation as a research area, education domain, and growing profession that transcends disciplines and organizational contexts.

### The Human-Computer Interaction Lab (HCIL)

2117 Hornbake Bldg, South Wing, College Park
Phone: 301-405-2769
hcil-info@cs.umd.edu

http://hcil.umd.edu

**Director:** Dr. Jessica Vitak
**Associate Director:** Dr. Joel Chan

The Human-Computer Interaction Lab (HCIL) transforms the experience people have with new technologies. From understanding user needs to developing and evaluating the technologies that support users' needs, the lab's faculty, staff, and students have been leading the way in HCI research and teaching for over 30 years. It is critical to understand how the needs and dreams of people can be reflected in future technologies. To this end, the HCIL develops advanced user interfaces and design methodology. The primary activities include collaborative research, publication and the sponsorship of seminars and brown bag talks, workshops and an annual symposium. The HCIL, though referred to as a lab, is actually a research center that is jointly administered by the iSchool and UMIACS, and has multiple labs, faculty, and students associated with it.

### Trace Research and Development Center

Room 2117 Hornbake Bldg, South Wing, College Park
Phone: 301-405-2043
trace-info@umd.edu
http://trace.umd.edu

**Director:** Dr. Jonathan Lazar

The Trace Center's purpose is to apply engineering, computer science, disability studies, public policy, and information science to prevent the barriers to, and capitalize on the opportunities presented by, current and emerging information and communication technologies. Our vision is of a world that is accessible and usable by people of all ages and all abilities – each experiencing ICT in a way they can understand and use. Founded in 1971, Trace has been a pioneer known for high-impact research and development, including access features implemented in computer operating systems, leadership in development of Web Content Accessibility Guidelines and many other accessibility standards, and techniques used to increase the accessibility of self-service kiosks in post offices, train stations, and airports. Trace is currently a leader in the development and large-scale deployment of a Global Public Inclusive Infrastructure that combines cloud computing, web, and platform services to make online information and services available for people facing accessibility barriers.

### Social Data Science Center (SoDa)

http://socialdatascience.umd.edu

**Co-Directors:** Dr. Brian Butler and Professor Frauke Kreuter

The Social Data Science Center (SoDa) – a Center established by the College of Information and the Joint Program in Survey Methodology (JPSM) within the College of Behavioral and Social Sciences – is an inter-disciplinary academic and research center. SoDa plans to sponsor seminars, workshops and focused conferences designed to bring attention to the rapidly expanding universe of digitized data and new forms of behavioral data, as well as developments in data science that can benefit investigators in the social sciences.

# Information Risk Management, Ethics, and Privacy Minor

**Faculty Program Director:** Galina Reitz, Ph.D.
**Assistant Director:** Tetyana Bezbabna
**Academic Advisor:** Jacob Davidson

The 5-course Information Science undergraduate minor in Risk Management, Ethics, and Privacy is designed to prepare students to evaluate major information and big data privacy and security issues facing individuals and organizations. The curriculum will examine risks organizations face while collecting, storing, and managing information and their existing customers' and stakeholders' data. Coursework will focus on practical strategies to mitigate risks and will explore the ways emerging technologies benefit in the context of risk management, ethics, and privacy.

All courses in the Information Risk Management, Ethics, and Privacy minor are offered virtually and are available to the University of Maryland students from both College Park and Shady Grove campuses.

## Program Learning Outcomes

1. Perform information security risk assessment, identify potential threats, and develop threat mitigation strategies.
2. Describe individual privacy rights, related laws and regulations, and the use of information assurance technologies to support the enforcement of these rights.
3. Describe the responsibilities of all levels of users related to the threats against information systems.
4. Describe security design principles and identify security mechanisms to implement desired security principles.
5. Identify malicious activities and attacks, and recommend appropriate response capabilities.
6. Perform audit procedures, evaluate the strengths and weaknesses of security mechanisms, and develop contingency plans to address the limitations of those procedures
7. Communicate information security concepts to individuals with diverse levels of computing skills.

## REQUIREMENTS

**Minor Completion Requirements**
In order to complete the minor, students must:

- Complete all 15 required credits.
- Achieve a minimum grade of "C-" or better in all minor courses.
- At least nine credits must be completed at the 400-level to earn the minor.
- Only six credits or two courses from the minor are allowed to satisfy a degree requirement towards your major. Please consult with your academic advisor for more information.
- Students who matriculate to the university starting in fall 2012 (freshmen and transfers) must achieve a cumulative 2.0 GPA in their minor and major courses.
- No more than 6 credits can be completed at an institution other than the University of Maryland, College Park.
- The posting of a minor on a student's official transcript is done concurrently with the posting of the bachelor's degree. Therefore, all minor classes must be completed prior to graduation.

More information about the minor declaration process can be found here (https://ischool.umd.edu/academics/bachelors-programs/bachelor-of-science-in-information-science-shady-grove/admissions/).

| Course | Title | Credits |
|---|---|---|
| INST364 | Human-Centered Cybersecurity | 3 |
| INST366 | Privacy, Security and Ethics for Big Data | 3 |
| INST455 | Information Assurance and Compliance | 3 |
| INST456 | Risk Management Leadership in the Information Age (Risk Management Leadership in the Information Age) | 3 |
| INST461 | Emerging Technologies and Risk Management | 3 |
| **Total Credits** | | **15** |

# ADVISING

Admission and advising for the Information Risk Management, Ethics, and Privacy minor is managed by the UMD Information Science undergraduate team at the Universities at Shady Grove campus (Rockville, MD).

Please note that advising questions related to how the Minor courses may count towards degree requirements or other program requirements should be directed to a student's academic advisor.

If you have any questions about this minor, please email usginfosci@umd.edu.

# Information Science Major

**Program Directors:** Pamela Duffy (College Park), Galina Madjaroff Reitz (Shady Grove)

The field of information science, particularly in the iSchool, is a field concerned with the intersections of information, people, and technology. Information science is an interdisciplinary field, drawing from other areas of study such as computer science, management, social science, education, and the humanities, but with a focus on individual and institutional users of information and their information needs. In our program students gain the knowledge and the skills for creating information systems, resources, and services that help address society's pressing needs in a variety of contexts and in a variety of private and public sector positions, ranging from financial services to healthcare; from information technology to consulting; and from education to cultural institutions.

Restriction: Students are not permitted to double-major or double-degree with the Bachelor of Arts in Technology and Information Design.

## Admission to the Major

Students who are accepted to the university and list Information Science (InfoSci) as their preferred major will start directly in our program. Students currently in the university who are interested in declaring Information Science must complete our Change of Major process. For more information please visit the InfoSci website (https://ischool.umd.edu/academics/bachelors-programs/bachelor-of-science-in-information-science-college-park/) or email InfoSci@umd.edu.

## Program Objectives

InfoSci students gain the knowledge and the skills for creating information systems, resources, and services that help address society's greatest needs. Through coursework, internships, extracurricular projects, and networking, InfoSci students build careers that will place them in leadership roles in information management, information technology, user-centered design, and data analytics.

## Program Learning Outcomes

At the completion of this program, students will be able to:

1. Articulate, discuss and critically analyze information design and management: the interrelationships among information consumers or creators, information content, and the conduits through which information flows.
2. Apply basic principles to the design, development and management of information to meet the needs of diverse users.
3. Assess the impact of existing or emerging technologies on information practices and the flow of information.
4. Employ state-of-the-art tools and techniques to create, manage, and analyze information.
5. Articulate, discuss and critically analyze critical issues including the security, privacy, authenticity, and integrity of information.
6. Explain and discuss how information technologies, processes, and practices are situated in, and may reflect, reenact and reinforce broader social and organizational structures, and the ethics, diversity, equity, and inclusion issues engendered by those structures.
7. Critically evaluate information technologies, processes, and practices to identify biases they involve, and design technologies and processes that minimize those biases.

# REQUIREMENTS

Students must earn a "C-" or better in all major requirements and an overall average of 2.0.

| Course | Title | Credits |
|---|---|---|
| **Benchmark Courses** | | |
| MATH115 | Precalculus | 3 |
| PSYC100 | Introduction to Psychology | 3 |
| STAT100 | Elementary Statistics and Probability | 3 |
| INST126 | Introduction to Programming for Information Science [1] | 3 |
| **Major Core Requirements** | | |
| INST201 | Introduction to Information Science | 3 |
| INST311 | Information Organization | 3 |
| INST314 | Statistics for Information Science | 3 |
| INST326 | Object-Oriented Programming for Information Science | 3 |
| INST327 | Database Design and Modeling | 3 |
| INST335 | Organizations, Management and Teamwork | 3 |
| INST346 | Technologies, Infrastructure and Architecture | 3 |
| INST352 | Information User Needs and Assessment | 3 |
| INST362 | User-Centered Design | 3 |
| INST490 | Integrated Capstone for Information Science | 3 |
| **Major Elective Requirements** | | |
| Select ONE of the following options: | | 15 |

1. Complete at least 15 credits of INST-coded major electives [2]

| | |
|---|---|
| 2. InfoSci Cognate Area: Data Science, Cybersecurity and Privacy, Digital Curation, and Health Information (See below for more information) | |
| **Total Credits** | **57** |

1 Other courses exist which fulfill this requirement. Please check with your advisor to make sure that a particular course fulfills this requirement before registering.
2 Check Testudo for currently available INST elective courses.

## Data Science Cognate Area

The original cognate area in the InfoSci program allows students develop understanding and skills for managing, manipulating, and mobilizing data to develop insight, create value, and achieve organizational goals in a wide range of sectors. The two career streams students aim for after completing this cognate area are data analysts - focusing on analyzing and reporting data - and data stewards - focusing on extracting, manipulating, and preparing data for quicker and more efficient analysis.

## Cybersecurity and Privacy Cognate Area

This cognate area is based on the perspective that a comprehensive and effective understanding of issues surrounding cybersecurity should encompass both technological and human aspects. This cognate area helps students equip themselves with human-centered cybersecurity skills and perspectives, and prepare to launch careers in the cybersecurity field with particular emphasis on management, policy, and governance-related functions.

## Digital Curation Cognate Area

This cognate area prepares students for jobs where they collect, digitize, appraise, curate, and disseminate information assets effectively and efficiently. Information is at the heart of our society's ability to learn, conduct business, recreate, and manage complex scientific, technological, industrial, and information infrastructures. Students focusing in this cognate area will play critical roles in preserving a vast and varied body of information for posterity.

## Health Information Cognate Area

This cognate area teaches students about the ways data informs the decisions made by health professionals, patients, and policy makers. Students focusing in this cognate area will learn about designing patient-centered technologies, health informatics for patients and consumers, and health data analytics.

## GRADUATION PLANS

Click here (https://ischool.umd.edu/academics/student-services/undergraduate-college-park/four-year-plans/) for roadmaps for graduation plans in the College of Information.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Science, Technology, Ethics and Policy Minor (INFO)

stepminor@umd.edu
http://spp.umd.edu/your-education/undergraduate/minors/science-technology-ethics-and-policy-step-minor/

**Program Director:** David Tomblin, Ph.D.

The minor in Science, Technology, Ethics and Policy (STEP) explores the powerful social, ethical, and political relationships that drive research and innovation. The program delves into the challenges of living and innovating in a world where emerging science and technologies are becoming increasingly interconnected, pervasive, and powerful. The STEP minor offers students the knowledge and analytical skills to understand and assess the complex interactions among science, technology, policy and ethics, providing students the opportunity to explore the ways that scientific practice and technological development are embedded in social, cultural, humanistic, and political systems.

STEP welcomes students from all majors who are interested in understanding how we can responsibly maximize the societal benefits of scientific inquiry and technological innovation. The program's primary goal is to give students analytical skills that help connect science and technology to broader social needs. Coursework emphasizes the importance of interdisciplinary modes of inquiry to generate new scientific knowledge and technologies, and to understanding the ethical considerations and social benefits that flow from them.

Electives are grouped in three concentrations, each linked to a learning outcome. Students can go deep in one concentration or choose across groupings. The end product of the program is a capstone research project of the student's own choosing, which is developed under faculty mentorship. At the onset of the capstone course, students will complete an assignment that allows them to articulate how their elective courses have shaped their understanding of science, technology, ethics and policy and how it informs their choice of capstone project.

## Minor concentration areas:

**Social, ethical and policy implications**: This concentration explores the contemporary societal implications of science and technology. These courses ask students to think about the role science and technology have played in creating local and global social and environmental crises and what science and technology can do to help solve them.

**Science and technology development**: This concentration focuses on cultural, legal, organizational, and institutional forces that have shaped science and technology. It asks students to think about what causes knowledge production and technical practices to change over time and how these changes can improve implementation going forward.

**Information economy**: This concentration focuses on how the information economy has shaped scientific and technological practices. Students are asked to think about society's evolving relationships with information as a driving force in the private and public sector.

## Student Learning Outcomes

1. Articulate and explore the social, ethical, and policy implications of how scientific ideas emerge and technologies are designed, developed, and used (Social, ethical and policy implications concentration)

2. Identify political and legal contexts governing science and technology (Social, ethical and policy implications concentration)
3. Recognize lessons from the historical contingency and legacy of scientific knowledge and technological development (Science and technology development concentration)
4. Synthesize broad implications of the "information economy" for science, technology, and society (Information economy concentration)
5. Interpret the rules, customs, and cultural practices that are the foundation for scientific and technological institutions. (Science and technology development concentration)

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Required Courses (2 classes)** | | **6** |
| ENES240 | Ethical, Policy and Social Implications of Science and Technology | 3 |
| ENES440 | Science, Technology, Ethics, and Policy: Minor Program Capstone | 3 |
| **Electives (3 classes)** | | **9** |
| For a comprehensive list of electives see website. [1] | | |
| **Total Credits** | | **15** |

[1] Six credits must be at the 300-400 level.

http://spp.umd.edu/your-education/undergraduate/minors/science-technology-ethics-and-policy-step-minor/

# Social Data Science Major (INFO)

**Notice of Addendum:** This page has been updated effective Fall 2024. See Addenda to this Catalog (p. 1116) for details.

**Program Directors:** Brian Kim, Ph.D. and Katie Shilton, Ph.D.

Creating information products that capture aspects of human behavior requires an increasingly complex set of skills and knowledge. This program combines the expertise of faculty members from the College of Information (INFO) and the College of Behavioral and Social Sciences (BSOS) to prepare students to effectively, ethically and efficiently create high quality information products, such as datasets, visualizations, and models, about human activity and behavior. This critical suite of knowledge and skills is essential in many domains, including government, healthcare, sustainability, economics, entertainment, human rights, equity, and others. Students take a set of core courses housed primarily in INFO and BSOS's Joint Program in Survey Methodology (JPSM). They then select a track discipline, in which they train in relevant theory and methods, from among the following options: African-American Studies, Anthropology, Economics, Government and Politics/International Relations, Geography/Geospatial Information Science, Psychology, Public Health, or Sociology.

Restriction: Students are not permitted to double-major or double-degree with Social Data Science and the BSOS major associated with their track area. Students are permitted to double-major or double-degree with another BSOS major outside their Social Data Science track. Students in the Public Health track may double-major or double-degree with any School of Public Health major.

## Program Learning Outcomes

1. Design, execute, document, and disseminate research that applies tools and methods from data science to address a social science research question
2. Develop expertise in specific contemporary social science theories and data science approaches to tackling research questions related to these theories
3. Apply findings from social data science research to analyze the policy and design of socio-technical systems
4. Identify and analyze social, legal, and ethical and equity issues in social data science work and in the profession

## REQUIREMENTS

Major course requirements consist of core courses and track area courses in one of the following tracks: African American Studies, Anthropology, Economics, Geographical Sciences, Government & Politics, Psychology, Public Health, or Sociology. Students are not permitted to double-major or double-degree with Social Data Science and the BSOS major associated with their track area. Students are permitted to double-major or double-degree with another BSOS major outside their Social Data Science track. Students in the Public Health track may double-major or double-degree with any School of Public Health major. Both core courses and track courses include benchmark courses. Failure of a student to complete both sets of benchmark courses within the timeline indicated may result in probation and/or dismissal from the major. Benchmark I courses must be completed with a C- or higher within the first two semesters of the program. Benchmark II courses must be completed within the first three semesters of the program.

## Social Data Sciences Requirements

| Course | Title | Credits |
|---|---|---|
| **Benchmark I Core Courses:** | | |
| BSOS233 | Data Science for the Social Sciences | 3 |
| STAT100 | Elementary Statistics and Probability | 3 |
| Math Course (Based on Track Requirement): | | 3 |
| For African-American Studies, Anthropology, Government & Politics, and Sociology Tracks: | | |
| MATH115 | Precalculus | |
| For Economics, Geographical Sciences, Psychology, and Public Health Tracks: | | |
| MATH120 | Elementary Calculus I | |
| **Additional Core Courses:** | | |
| BSOS326 | Python Programming for the Social Sciences | 3 |
| INST327 | Database Design and Modeling | 3 |
| INST366 | Privacy, Security and Ethics for Big Data | 3 |
| INST414 | Data Science Techniques | 3 |
| INST447 | Data Sources and Manipulation | 3 |
| INST462 | Introduction to Data Visualization | 3 |
| SURV400 | Fundamentals of Survey and Data Science | 3 |
| **Capstone** | | |
| INST490 | Integrated Capstone for Information Science | 3 |
| **Track Area Courses (see below for specific requirements)** | | **12-21** |
| **Total Credits** | | **45-54** |

## African American Studies Track

| Course | Title | Credits |
|---|---|---|
| **Benchmark II Track Courses:** | | |
| AASP101 | Public Policy and the Black Community | 3 |
| **Track I Requirement:** | | |
| AASP210 | Intro to Research Design and Analysis in African American Studies | 3 |
| AASP395 | Fundamentals of Quantitative Research in Socio-Cultural Perspective | 3 |
| **Track II Requirement:** | | |
| Nine credits from the following list: | | 9 |
| AASP301 | Applied Policy Analysis and the Black Community | |
| AASP310 | African Slave Trade | |
| AASP313 | Black Women in United States History | |
| AASP314 | | |
| AASP400 | Directed Readings in African American Studies | |
| AASP402 | Classic Readings in African American Studies | |
| AASP411 | Black Resistance Movements | |
| AASP441 | Science, Technology, and the Black Community | |
| AASP443 | Blacks and the Law | |
| AASP499 | Advanced Topics in Public Policy and the Black Community | |
| **Total Credits** | | **18** |

## Anthropology Track

Students in the Anthropology track choose one of three tracks: Health, Heritage, or Environment.

| Course | Title | Credits |
|---|---|---|
| **Anthropology-Health Track** | | |
| Benchmark II Anthropology-Health Track Courses: | | |
| ANTH210 | Introduction to Medical Anthropology and Global Health | 3 |
| Anthropology-Health Track I Requirement: | | |
| INST314 | Statistics for Information Science | 3 |
| ANTH310 | Method & Theory in Medical Anthropology and Global Health | 3 |
| Anthropology-Health Track II Requirement: | | |
| Nine credits from the following list: | | 9 |
| ANTH411 | Global Migration and Health | |
| ANTH412 | Hypermarginality and Urban Health | |
| ANTH413 | Health Disparities in the United States | |
| ANTH415 | Critical Global Health | |
| ANTH416 | Anthropology of Global Violence | |
| **Anthropology-Heritage Track** | | |
| Benchmark II Anthropology-Heritage Track Courses: | | |
| ANTH240 | Introduction to Archaeology | 3 |
| INST314 | Statistics for Information Science | 3 |
| Anthropology-Heritage Track I Requirement: | | |
| ANTH340 | Method and Theory in Archaeology | 3 |
| Anthropology-Heritage Track II Requirement: | | |
| Nine credits from the following list: | | 9 |
| ANTH341 | Introduction to Zooarchaeology | |
| ANTH440 | Theory and Practice of Historical Archaeology | |
| ANTH441 | Archaeology of Diaspora | |
| ANTH447 | Material Culture Studies in Archaeology | |
| ANTH448 | Special Topics in Archaeology | |
| ANTH451 | Environmental Archaeology | |
| ANTH464 | Anthropology of Cultural Heritage | |
| ANTH496 | Field Methods in Archaeology | |
| **Anthropology-Environment Track** | | |
| Bookmark II Anthropology-Environment Track Courses: | | |
| ANTH222 | Introduction to Ecological and Evolutionary Anthropology | 4 |
| INST314 | Statistics for Information Science | 3 |
| Anthropology-Environment Track I Requirement: | | |
| ANTH322 | Method and Theory in Ecological Anthropology | 3 |
| Anthropology-Environment Track II Requirement: | | |
| Nine credits from the following list: | | 9 |
| ANTH450 | Theory and Practice of Environmental Anthropology | |
| ANTH454 | Political Ecology | |
| ANTH456 | Conservation and Indigenous People in South America | |
| ANTH462 | Amazon Through Film | |
| ANTH467 | Researching Environment and Culture | |

## Economics Track

| Course | Title | Credits |
|---|---|---|
| **Benchmark II Track Courses:** | | |
| ECON200 | Principles of Microeconomics | 3 |
| ECON201 | Principles of Macroeconomics | 3 |
| **Track I Requirement:** | | |
| ECON230 | Applied Economic Statistics | 3 |
| ECON305 | Intermediate Macroeconomic Theory and Policy | 3 |
| or ECON306 | Intermediate Microeconomic Theory & Policy | |
| **Track II Requirement:** [1] | | |
| Six credits from the following list: | | 6 |
| ECON305 | Intermediate Macroeconomic Theory and Policy | |
| or ECON306 | Intermediate Microeconomic Theory & Policy | |
| ECON311 | American Economic History Before the Civil War | |
| ECON312 | American Economic History After the Civil War | |
| ECON315 | Economic Development of Underdeveloped Areas | |
| ECON317 | Global Economic Policies | |
| ECON330 | Money and Banking | |
| ECON340 | International Economics | |
| **Total Credits** | | **18** |

[1] The course taken for the Track I requirement may not also be used for the Track II requirement. No double-count for these two categories.

## Geographical Sciences Track

| Course | Title | Credits |
|---|---|---|
| **Benchmark II Track Courses:** | | |
| GEOG202 | Introduction to Human Geography | 3 |

| | | |
|---|---|---|
| **Track I Requirement:** | | |
| GEOG306 | Introduction to Quantitative Methods for the Geographical Environmental Sciences | 3 |
| GEOG373 | Geographic Information Systems | 3 |
| **Track II Requirement:** | | |
| 9 credits from the following list (six must be at the 400-level): | | 9 |
| GEOG330 | As the World Turns: Society and Sustainability in a Time of Great Change | |
| GEOG331 | Introduction to Human Dimensions of Global Change | |
| GEOG332 | Economic Geography | |
| GEOG333 | The Social Geography of Metropolitan Areas in Global Perspective | |
| GEOG335 | | |
| GEOG415 | Land Use, Climate Change, and Sustainability | |
| GEOG416 | Conceptualizing and Modeling Human-Environmental Interactions | |
| GEOG421 | Changing Geographies of China | |
| GEOG422 | Changing Geographies of Sub-Saharan Africa | |
| GEOG432 | Spatial Econometrics | |
| GEOG470 | Algorithms for Geospatial Computing | |
| GEOG473 | Geographic Information Systems and Spatial Analysis | |
| GEOG475 | Geographic Visualization and Digital Mapping | |
| GEOG477 | | |
| **Total Credits** | | **18** |

## Government and Politics Track

| Course | Title | Credits |
|---|---|---|
| **Benchmark II Track Courses:** | | |
| GVPT170 | American Government | 3 |
| **Track I Requirement:** | | |
| GVPT200 | International Political Relations | 3 |
| GVPT201 | Scope and Methods for Political Science Research | 3 |
| GVPT320 | Advanced Empirical Research | 3 |
| **Track II Requirement:** | | |
| Any six credits of GVPT coursework at the 300- or 400- levels | | 6 |
| **Total Credits** | | **18** |

## Psychology Track

| Course | Title | Credits |
|---|---|---|
| **Benchmark II Track Courses:** | | |
| PSYC100 | Introduction to Psychology | 3 |
| **Track I Requirement:** | | |
| PSYC200 | Statistical Methods in Psychology | 3 |
| PSYC300 | Research Methods in Psychology Laboratory | 4 |
| **Track II Requirement:** | | |
| Nine credits from the following list: | | 9 |
| PSYC330 | Child Psychopathology | |
| PSYC332 | Psychology of Human Sexuality | |
| PSYC334 | Psychology of Interpersonal Relationships | |
| PSYC336 | Psychology of Women | |
| PSYC341 | Introduction to Memory and Cognition | |
| PSYC344 | Health Psychology | |
| PSYC353 | Adult Psychopathology | |
| PSYC354 | Multicultural Psychology in the U.S. | |
| PSYC355 | Developmental Psychology | |
| PSYC356 | | |
| PSYC361 | Survey of Industrial and Organizational Psychology | |
| PSYC362 | Introduction to Negotiation | |
| PSYC416 | Development of Attachment in Infancy and Childhood: Theory, Research, Methods, and Clinical Implications | |
| PSYC417 | Data Science for Psychology and Neuroscience Majors | |
| PSYC420 | Experimental Psychology: Social Psychology Laboratory | |
| PSYC424 | Communication and Persuasion | |
| PSYC425 | Psychology and Law | |
| PSYC432 | Counseling Psychology: Theories, Research, and Practice | |
| PSYC435 | Temperament, Personality, and Psychopathology | |
| PSYC436 | Introduction to Clinical Psychology: From Science to Practice | |
| PSYC437 | The Assessment and Treatment of Addictive Behaviors | |
| PSYC440 | Experimental Psychology: Cognitive Processes and Legal Applications | |
| PSYC450 | Applying Psychology to the Workplace: Industrial Organizational Psychology Laboratory | |
| PSYC456 | | |
| PSYC460 | Psychological Foundations of Personnel Selection and Training | |
| **Total Credits** | | **19** |

## Public Health Track

| Course | Title | Credits |
|---|---|---|
| **Benchmark II Track Courses:** | | |
| SPHL100 | Foundations of Public Health | 3 |
| **Track I Requirement:** | | |
| EPIB301 | Epidemiology for Public Health Practice | 3 |
| EPIB315 | Biostatistics for Public Health Practice | 3 |
| HLTH200 | Introduction to Research in Community Health | 3 |
| **Track II Requirement:** | | |
| Nine credits from the following list: | | 9 |
| EPIB330 | Introduction to Infectious Disease Epidemiology | |
| EPIB400 | Obesity: An Epidemiologic Perspective | |
| EPIB463 | Introduction to Biostatistical Programming | |
| FMSC310 | Maternal, Child and Family Health | |
| FMSC332 | Children in Families | |
| FMSC460 | Violence in Families | |
| HLSA300 | Introduction to Health Policy and Services | |
| HLSA465 | Redesigning Mental Health Services | |
| HLSA484 | Redesigning Health Care: Developing a Clinic to Meet Community Needs | |
| HLTH377 | Human Sexuality | |
| HLTH424 | Lesbian, Gay, Bisexual & Transgender Health | |

| | | |
|---|---|---|
| HLTH434 | Introduction to Public Health Informatics | |
| KNES400 | The Foundations of Public Health in Kinesiology | |
| KNES401 | Zip Code: Prediction of Physical Activity & Health | |
| MIEH240 | Global Health Projects: Addressing Health Needs with a focus on Reciprocity and Relationships | |
| MIEH400 | Introduction to Global Health | |
| PHSC401 | History of Public Health | |
| PHSC412 | Food, Policy, and Public Health | |
| **Total Credits** | | **21** |

## Sociology Track

| Course | Title | Credits |
|---|---|---|
| **Benchmark II Track Courses:** | | |
| SOCY100 | Introduction to Sociology | 3 |
| **Track I Requirement:** | | |
| SOCY201 | Introductory Statistics for Sociology | 4 |
| SOCY202 | Introduction to Research Methods in Sociology | 4 |
| **Track II Requirement:** | | |
| Nine credits from the following list: | | 9 |
| SOCY325 | The Sociology of Gender | |
| SOCY335 | Sociology of Health and Illness | |
| SOCY401 | Intermediate Statistics for Sociologists | |
| SOCY405 | Scarcity and Modern Society | |
| SOCY406 | | |
| SOCY407 | Explaining Social Change: Historical and Comparative Methods | |
| SOCY410 | Social Demography | |
| SOCY411 | Demographic Techniques | |
| SOCY412 | Family Demography | |
| SOCY413 | Sociology of Aging | |
| SOCY415 | Environmental Sociology | |
| SOCY420 | Qualitative Research Methods in Sociology | |
| SOCY430 | | |
| SOCY431 | Principles of Organizations | |
| SOCY432 | Social Movements | |
| SOCY441 | Social Stratification and Inequality | |
| SOCY442 | The Black Middle Class | |
| SOCY444 | | |
| SOCY445 | Sex and Love in Modern Society | |
| SOCY457 | Sociology of Law | |
| SOCY464 | | |
| SOCY465 | The Sociology of War: State and Society since the American Revolution | |
| SOCY467 | Sociology of Education | |
| SOCY480 | Researching the Middle East | |
| SOCY490 | Experimental Research Practicum | |
| SOCY491 | Experimental Research Design | |
| **Total Credits** | | **20** |

# GRADUATION PLANS

Click here (https://ischool.umd.edu/academics/student-services/undergraduate-college-park/four-year-plans/) for roadmaps for graduation plans in the College of Information.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Technology and Information Design Major

**Notice of Addendum:** This page has been updated effective Fall 2024. See Addenda to this Catalog (p. 1110) for details.

**Program Director:** Tamara Clegg, Ph.D.

The B.A. in Technology and Information Design (InfoDesign) teaches students to frame important problems at the intersection of people and information; to design solutions for those problems; and to realize, deploy and iterate on those solutions. InfoDesign supports students in their efforts to use technology in the service of the greater good; to apply and expand their creativity; to develop a start-up mentality (in which they must try solutions and fail first in order to succeed); and to engage in rapid development and prototyping grounded by rapid evaluation and assessment. Students participate in hands-on studio and laboratory classes in user-centered design, technology development, problem-solving and cross-disciplinary communication. Graduates may become designers, planners, technology consultants, project managers, and entrepreneurs, in such wide-ranging fields as user experience, mobile development, healthcare, law, entertainment, policy, smart-city development, libraries and archives.

Restriction: Students are not permitted to double-major or double-degree with the Bachelor of Science in Information Science.

## Program Learning Outcomes

1. Frame important problems at the intersection of people and information
2. Analyze the interplay of people, information, and technology at various scales (e.g., individuals or small groups, communities or organizations, regions or institutions)
3. Leverage a systems-thinking approach through modeling and simulation
4. Design solutions for these problems
5. Implement design thinking skills, including user research, ideation, prototyping, and participatory design
6. Communicate ideas to gather momentum and iterate through sketching, prototyping and data visualization
7. Iteratively assemble existing components to form new solutions within a supportive culture of critique
8. Attend to the ethical and equitable implications of their designs
9. Realize, deploy, and iterate on these solutions at appropriately selected scale(s)
10. Assess the scale of the problem and the appropriate deployment of potential solutions

11. Organize people to properly implement solutions through leadership and entrepreneurship skills
12. Evaluate success of a solution in a socially embedded setting, to include the employment of skills such as testing, evaluation, and auditing

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Core Courses** | | |
| INST104 | Design Across Campus | 3 |
| INST126 | Introduction to Programming for Information Science | 3 |
| IDEA258 | Special Topics in Innovation (IDEA258A Becoming a Design Thinker: Tools and Mindsets for Innovation) | 1 |
| INST201 | Introduction to Information Science | 3 |
| SOCY105 | Understanding Contemporary Social Problems - Frameworks for Critical Thinking and Strategies for Solutions | 3 |
| STAT100 | Elementary Statistics and Probability | 3 |
| INST204 | Designing Fair Systems | 3 |
| INST380 | Technology and Information Design: Do Good Now | 3 |
| or PLCY380 | Innovation and Social Change: Do Good Now | |
| INST367 | Prototyping and Development Studio | 3 |
| INST406 | Cross Disciplinary Communication Lab | 3 |
| INST454 | (Modeling and Simulating Systemic Problems) | 3 |
| INST466 | Technology, Culture, and Society | 3 |
| INST491 | (Integrated Capstone for Technology and Information Design) | 3 |
| **Major Electives** | | **18** |
| INST311 | Information Organization | |
| INST352 | Information User Needs and Assessment | |
| INST366 | Privacy, Security and Ethics for Big Data | |
| INST401 | Design and Human Disability and Aging | |
| INST402 | Designing Patient-Centered Technologies | |
| INST404 | (Youth Experience Design Studio) | |
| INST405 | Game Design | |
| INST441 | Information Ethics and Policy | |
| INST460 | (Video Games as Emergent Experiences) | |
| INST463 | Technology Socialprenuer (AI and Society) | |
| Additional elective courses may be added to this list upon approval by the Technology and Information Design program committee. | | |
| **Total Credits** | | **55** |

**Benchmark courses (16 credits)**

Failure to complete both sets of benchmark courses within the timeline indicated below may result in dismissal from the program.

| Course | Title | Credits |
|---|---|---|
| **Benchmark I** | | |
| The below courses must be completed with a C- of higher within the first two semesters of the program: | | |
| INST104 | Design Across Campus | 3 |
| INST126 | Introduction to Programming for Information Science | 3 |
| IDEA258 | Special Topics in Innovation (IDEA258A Becoming a Design Thinker: Tools and Mindsets for Innovation) | 1 |
| **Benchmark II** | | |
| The below courses must be completed with a C- of higher within the first three semesters of the program: | | |
| INST201 | Introduction to Information Science | 3 |
| SOCY105 | Understanding Contemporary Social Problems - Frameworks for Critical Thinking and Strategies for Solutions | 3 |
| STAT100 | Elementary Statistics and Probability | 3 |

# GRADUATION PLANS

Click here (https://ischool.umd.edu/academics/student-services/undergraduate-college-park/four-year-plans/) for roadmaps for graduation plans in the College of Information.

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- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Technology Innovation Leadership Minor

**Faculty Program Director:** Galina Reitz, Ph.D.
**Assistant Director:** Tetyana Bezbabna

The minor in Technology Innovation Leadership will prepare students to effectively create and navigate a climate of technological innovation within an organization or team. By combining creative leadership practices with design thinking skills and analysis of sociotechnical challenges, students will tackle large-scale problems relating to technology innovation. The program will center on innovation thinking, a critical addition to business thinking, which will allow students to bring new ideas and energy to their leadership experiences and sociotechnical challenges. Coursework will examine the different ways leaders and social entrepreneurs strategically use innovative technologies and information to solve social, cultural, and environmental problems.

There are five (5) three-credit courses required as part of the minor.

All courses in the Technology Innovation Leadership minor are offered online by the UMD Information Science program through its **Shady Grove campus location** and are available to students from both College Park and Shady Grove campuses.

# Program Learning Outcomes

1. Describe and analyze the principles of technology innovation, leadership, and entrepreneurship.
2. Assess the role entrepreneurship and technology innovation play in societal well-being and development.
3. Describe and apply practical, hands-on entrepreneurial and leadership skills through developing creative and innovative solutions to solve societal issues.

4. Analyze ways that Social Entrepreneurs strategically use innovative technologies and information to solve social, cultural, and environmental issues.
5. Implement best practices and knowledge to successfully lead, create, and discover while sustaining the culture of innovation in their organizations and teams.

# REQUIREMENTS

**Minor Completion Requirements**
In order to complete the minor, students must:

- Complete all 15 required credits.
- Achieve a minimum grade of "C-" or better in all minor courses.
- At least nine credits must be completed at the 400-level to earn the minor.
- Only six credits or two courses from the minor are allowed to satisfy a degree requirement towards your major. Please consult with your academic advisor for more information.
- Students who matriculate to the university starting in fall 2012 (freshmen and transfers) must achieve a cumulative 2.0 GPA in their minor and major courses.
- No more than 6 credits can be completed at an institution other than the University of Maryland, College Park.
- The posting of a minor on a student's official transcript is done concurrently with the posting of the bachelor's degree. Therefore, all minor classes must be completed prior to graduation.

More information about the minor declaration process can be found here (https://ischool.umd.edu/academics/bachelors-programs/bachelor-of-science-in-information-science-shady-grove/admissions/).

| Course | Title | Credits |
|---|---|---|
| INST363 | Fundamentals of Technology Innovation | 3 |
| INST407 | Leading and Sustaining a Culture of Innovation | 3 |
| INST457 | (Lean Startup) | 3 |
| INST453 | Project Management for Information Science | 3 |
| INST463 | Technology Socialprenuer (The Technology Socialpreneur) | 3 |
| **Total Credits** | | **15** |

# ADVISING

Admission and advising for the Technology Innovation Leadership minor is managed by the UMD Information Science undergraduate team at the Universities at Shady Grove campus (Rockville, MD).

Please note that advising questions related to how the Minor courses may count towards degree requirements or other program requirements should be directed to a student's academic advisor.

If you have any questions about this minor, please email usginfosci@umd.edu.

# The Philip Merrill College of Journalism

1100 Knight Hall
Phone: 301-405-2399
journalism@umd.edu
http://merrill.umd.edu

**Dean:** Rafael Lorente
**Associate Deans:** Sarah Oates, Alexander Pyles, Linda Steiner
**Assistant Deans:** Katie Aune, Joshua Madden, Vanessa Nichols-Holmes

# Admissions

## Freshman Admission

Students who wish to study in the College of Journalism at Maryland starting in the fall are encouraged to apply for admission to the university by the priority deadline or the regular deadline. Students who wish to start their study in spring are encouraged to apply for admission by the priority deadline or the regular deadline. There is no separate application required for consideration to the journalism major. The Office of Undergraduate Admissions (http://admissions.umd.edu/) can assist you with your application for admission.

## Current UMD Students

Current UMD students who wish to add journalism as a new major or a second major can initiate the process by submitting a major declaration form (https://go.umd.edu/journewmajor/) and then contacting the JOUR Advising Team (jouradvising@umd.edu) to make an appointment to declare the major. Your journalism advisor will discuss the major requirements, review any courses you have taken, assist you with a graduation plan and officially declare your major.

## Transfer Students from Another Institution

College students from outside the University of Maryland are welcome to apply, and can do so for fall by the priority deadline or the regular deadline. College students outside the university who are seeking to study starting in the spring can apply by the priority deadline or the regular deadline.

## Transfer Credits

- No more than 12 transfer credits of journalism and mass communication courses from other institutions may be potentially approved by Merrill College to be applied toward the degree.
- Transfer students who wish to receive credit for JOUR201 based journalism/mass communication coursework done at another institution must pass a proficiency exam.
- The Office of Undergraduate Admissions (http://admissions.umd.edu/) can help you become familiar with the University of Maryland and assist you with your online application for admission.

# Benchmarks

In accordance with the university's policies, the College of Journalism expects students to make satisfactory academic progress toward graduation. To help measure a student's progress toward their degree, students must attempt courses designated as benchmarks within a specified number of credits in order to continue in the major.

All students in the College of Journalism must take a series of benchmark courses by the time that they have completed 30 credits and 60 credits.

**By 30 credits, students must have completed:**

1. JOUR181 Grammar for Journalists
2. JOUR200 Journalism History, Roles and Structures

**By 60 credits, students must have completed:**

1. JOUR152 Introduction to Storytelling with Code
2. JOUR201 News Writing and Reporting I
3. JOUR347 News Videography or JOUR370 Photojournalism
4. JOUR320 News Writing and Reporting II: Multiplatform

The college reviews students' transcripts to determine if students have successfully completed benchmark courses within the established timeframe and with the appropriate grades. If benchmark courses are met, students are expected to continue making satisfactory progress toward their degree. Students not meeting the benchmarks will be denied continued enrollment in the College of Journalism, necessitating a change of major should they wish to continue at the university.

For further information, contact the College's Student Services office at 301-405-2399.

# ACADEMIC PROGRAMS

# Major

- Journalism Major (p. 457)

# ADVISING

The Office of Student Services provides academic advising to journalism majors on an appointment basis. It is located at 1100 Knight Hall, 301-405-2399.

# OPPORTUNITIES

# Fieldwork Opportunities

## Internships

Supervised internships are essential. Karen Denny is the Internships and Career Development Director, 3107C Knight Hall, 301-405-2429.

## Professional Experience Opportunities

### Capital News Service

Capital News Service is a student-powered news organization run by the Philip Merrill College of Journalism. For more than two decades, it has provided deeply reported, award-winning coverage of issues of import to Marylanders.

With bureaus in College Park, Annapolis and Washington run by professional journalists, it delivers news in multiple multimedia formats via partner news organizations, a destination website, a nightly on-air television newscast and affiliated social media channels. It provides breaking news coverage, in-depth investigative and enterprise journalism, and serves as a laboratory for students to test and develop innovative new methods of reporting and telling stories.

### UMTV

For students interested in broadcast news, opportunities to gain experience with cable news programs are presented in the curriculum and by volunteering at the campus television station, UMTV.

### Student-Run Campus Media Outlets

Students can gain broadcast news and sports reporting experience through the campus radio station, WMUC. There are numerous student-run publications on campus. These include, The Diamondback, an independent daily newspaper that appears in print and online. The Diamondback is one of the most-read campus dailies in the nation. Among the many campus publications there are literary magazines, newspapers and websites of interest to special populations. These include The Black Explosion, The Mitzpeh, La Voz Latina, Stories Beneath the Shell, Her Campus, The Campus Trainer and Terrapin Sports Central.

# Living-Learning Programs

## College Park Scholars - Media, Self & Society

Co-sponsored by the Philip Merrill College of Journalism, the Media, Self and Society Program is one of the living/learning programs offered by the College Park Scholars Program. This two-year program for incoming freshmen is designed to give students the opportunity to undertake a critical examination of media organizations, institutions and practices as well as gain practical experience through involvement in a media-related activity of their choice. For more information, see the College Park Scholars Program entry in the "Office of Undergraduate Studies" section under "The Colleges and Schools."

# Honors Program

Although no departmental honors program currently exists within the college, academically outstanding students are recognized through Kappa Tau Alpha, the Journalism academic honor society.

# Student Societies and Professional Organizations

The college sponsors student chapters of the Society for Professional Journalists, the National Association of Hispanic Journalists, and the National Association of Black Journalists. These organizations provide students with opportunities to practice skills, establish social relationships with other students both on and off campus, and meet and work with professionals in the field.

For information on the organizations listed, contact the Student Services Office, 1100 Knight Hall, 301-405-2399.

# Financial Assistance

The college is committed to enrolling the most qualified students, regardless of ability to pay. Toward that end, the college, through donor-sponsored awards, gives annual scholarships to undergraduates. Additionally, the university awards scholarships and financial aid including low-interest loans, grants and work-study opportunities.

## Sources for Students

All incoming freshman are automatically considered for scholarships granted by the college. Current students are selected on a basis of need, merit, donors' intent or a combination of these factors. Below is a selection of scholarships students may be considered for.

**The Steven C. Affens Broadcast Journalism Scholarship**. This scholarship is awarded to an undergraduate broadcast student. Recipients shall be selected from applications that include evidence of the student's on-air TV work. A combination of overall academic performance, and judging of a sample of a student's on-air programming that emphasizes potential in visual storytelling and high-quality video news photography, will be used by the [PMC] scholarship committee in making the award.

**Carolyn A. and Howard F. Ahrens Scholarship.** Established by a bequest from Carolyn A. Ahrens, this scholarship is awarded to sophomores or juniors enrolled in the Philip Merrill College of Journalism. Students must be Maryland residents.

**Fred I., Edna O. and Fred J. Archibald Scholarship.** Established by a bequest from Fred I. Archibald of Baltimore News-American and Frederick News-Post newspaper editors, this scholarship is awarded to undergraduate students enrolled in the Philip Merrill College of Journalism.

**Professor Thomas Aylward Journalism Scholarship.** Awarded to a Merrill College Ph.D. student.

**Paul Berg Diamondback Scholarship.** Funded by friends and family and The Washington Post in memory of Paul Berg, Diamondback editor-in-chief 1978-79 and assistant editor of The Post's Health section at the time of his death in 1989. This scholarship is awarded to a Diamondback editor or news staff member who displays special achievement and effort while working for the campus daily newspaper. Applicants must have served at least one semester on the Diamondback staff, and must return to campus for the following fall semester. All majors may apply for this scholarship.

**Bonnie Bernstein Scholarship.** Bernstein is a 1992 Merrill College graduate who was an Academic All-American gymnast. Applicants must be a full-time, upperclass multi-platform journalism major (with preference for students in the broadcast component) who participates in an NCAA-sanctioned sport at the University of Maryland. Applicants also need to show evidence of financial need, have a GPA of 3.0 or above and submit an essay describing why they should receive the award.

**John Story Cleghorn and Nona Reese Cleghorn Scholarship.** Funded by the late College Dean Reese Cleghorn in honor of his parents, this scholarship is awarded to undergraduate or graduate journalism students based on academic merit, with preference given to students with financial need.

**Reese Cleghorn Excellence in Journalism Scholarship.** Created in memory of the late College Dean Reese Cleghorn, this scholarship is awarded to undergraduate or graduate journalism students based on academic merit, with preference given to students with financial need.

**Francis J. Cormier White House Correspondents' Association Scholarship.** Established in 1991 by the White House Correspondents' Association, this award was renamed in 1994 to honor the memory of Francis J. Cormier, who for two decades exemplified the best qualities of White House correspondents with a blend of gentleness, humor and professionalism that endeared him to the readers of his dispatches for The Associated Press. This renewable scholarship is awarded to four undergraduate students from Washington, D.C. or Prince George's County, Maryland on the basis of financial need. Students must re-apply each year to be considered for renewal.

**Ralph Crosby Journalism Excellence Award.** Funded by Mr. Crosby, a 1956 graduate of the College who is a member of the Merrill College Board of Visitors and chairman of Crosby Marketing Communications, Inc., in Annapolis. This scholarship provides an award toward tuition and fees to

an undergraduate journalism student based on academic performance and financial need, with preference (in order) given to a student from Annapolis, Anne Arundel County or the State of Maryland.

**The Ralph and Carlotta Crosby TerpStart Endowed Scholarship in Journalism.** Ralph Crosby '56 said, "Being a journalism major at the University of Maryland helped form my character, gave me a profession, and trained me academically and socially. Good reasons for giving back." This scholarship provides annual need-based funds, under the auspices of the TerpStart Matching Scholarship Program, with preference given (in order) to undergraduate students from Anne Arundel County or the State of Maryland who are enrolled in the Philip Merrill College of Journalism. (Students cannot apply for this scholarship.)

**Theodore Crown, Sr. and Joseph T. Crown, Jr. Scholarship.** Created by Kathryn Crown '66 in memory of her father and brother, this scholarship is awarded to undergraduate journalism students with junior or senior class standing.

**Entravision.** Awarded to a broadcast student in the Merrill College with high academic achievement. Preference is given to those who have demonstrated interest or experience covering issues or stories related to the Hispanic community, those who double major or minor in a Spanish language, who have studied abroad in Spain, Central America, or Latin America, and students who have worked or interned at a Spanish-language media organization.

**Penny Bender Fuchs Scholarship.** This scholarship was established by colleagues, family and friends of Penny Bender Fuchs, an admired and respected member of the Merrill College faculty from 1999 until her death in 2013. Rising Merrill College juniors and seniors are eligible for this award. Preference is given to students who have earned a grade point average of 3.0 or higher in journalism courses.

**Lawrence L. Goldberg and Lillie Z. Goldberg Journalism Scholarships.** Funded by Mr. and Mrs. Goldberg and their relatives and friends in honor of former Knight Chair Professors Hodding Carter III and Haynes Johnson, and former professor David Broder, three faculty members who taught classes that the Goldbergs attended at the Merrill College as retirees. Scholarships are awarded to undergraduate or graduate journalism students based on academic merit, with preference given to students with financial need.

**Gridiron Scholarship.** The Gridiron Foundation Journalism Scholarship was established in 2002 by the Gridiron Club and Foundation. The Gridiron Club is the oldest and most prestigious journalistic organization in Washington D.C., and its foundation makes charitable contributions and provides scholarship to journalism students. The Gridiron Foundation Journalism Scholarship is awarded to undergraduate students based upon outstanding academic achievements and a stated commitment to pursue a career in journalism. Students must re-apply each year to be considered for renewal.

**The Michael Gurevitch Journalism Scholarship.** The Michael Gurevitch Journalism Scholarship was established in January 2009 by Patricia Gurevitch, in memory of her husband. An internationally renowned mass communication scholar, Professor Emeritus Michael Gurevitch taught at the University of Maryland's College of Journalism from 1983 until 2008. Much of his work was grounded in case studies and original research relating to how journalists grasped the practical problems of keeping the public informed. Professor Gurevitch would not have been able to be in the United States to earn his 2 degrees if he did not have help from others. This scholarship provides non- renewable funds for doctoral students in the Merrill College. Preference will be given to international students with financial need.

**The Ralph M. Hamaker TerpStart Endowed Scholarship.** Started by Ralph M. Hamaker '53, this scholarship provides annual need-based funds, under the auspices of the TerpStart Matching Scholarship Program, for undergraduate students enrolled in the Philip Merrill College of Journalism. (Students cannot apply for this scholarship.)

**The Ray Hiebert Scholarship Fund.** This scholarship is awarded to graduate broadcast students.

**Carol Horner Journalism Scholarship.** This scholarship was established by family, friends and colleagues of the late Ms. Horner, a dedicated journalist and woman of wonderful good humor who forged a distinguished career as a reporter and editor at the Philadelphia Inquirer and Wall Street Journal before serving as director of the Knight Center for Specialized Journalism at the University of Maryland. This non-renewable scholarship is awarded to a high-achieving undergraduate student with financial need in the Philip Merrill College of Journalism.

**Christopher Houston '85 Scholarship.** The K. Christopher Houston Scholarship was established in memory of K. Christopher "Chris" Houston, '85, a distinguished journalist who worked for CNN Headline News in Atlanta and WUSA-TV in Washington, D.C. Funded by Karen Gray Houston, family and friends, this scholarship is awarded to a student at the Philip Merrill College of Journalism who has demonstrated a strong interest in pursuing a career in broadcast journalism.

**Jay Jackson Scholarship.** Funded by former Annapolis newspaper executive Allen Jackson in memory of his brother Jay, an honors graduate of Maryland's second journalism class. This scholarship is awarded based on merit and need, to a multi-platform student who will be a senior the following semester.

**Haynes Johnson Scholarship Fund.** The Haynes Johnson Scholarship Fund was established in 2013 by funds donated from the faculty, staff and friends of Haynes Johnson. This scholarship will be awarded to an outstanding student in the Merrill College based on financial need and academic merit.

**Robert C. Keith Fund for Investigative Journalism.** The Fund shall be used to provide support for scholarships and teaching grants to faculty and students and support for other investigative journalism endeavors at the discretion of the dean of the Philip Merrill College of Journalism.

**Phyllis and Frank Kopen Broadcast Journalism Scholarship.** Endowed by broadcast faculty member and College alumna Sue Kopen Katcef '76 in honor of her parents, this scholarship is awarded to a sophomore or junior broadcast student (radio or TV) in recognition of their contributions to the College's broadcast journalism program. Consideration may be given to financial need and academic performance. Awards may be renewable for up to two years if recipients continue to make satisfactory academic progress. Students must re-apply each year to be considered for renewal.

**Tom Kunkel Journalism Excellence Scholarship.** Created by colleagues and friends of former dean Tom Kunkel (2000-2008), this scholarship is awarded to outstanding undergraduate students based on academic merit, with preference given to students with financial need.

**Jonathan Ledecky Sports Journalism Scholarship.** Funded by New York Islanders minority owner Jonathan Ledecky to support scholarships for students in the Philip Merrill College of Journalism who have interest

in sports journalism. Recipients must have an expressed interest in sports journalism, be accepted for full-time enrollment and maintain good academic standing.

**Rick Martin '92 Scholarship in Journalism.** The Rick Martin '92 Scholarship in Journalism was established in 2015 by Mr. Rick Martin. Mr. Martin has worked in the television news industry for more than 20 years as an assignment editor and manager – at CNN as well as other local news markets in Washington, D.C., Baltimore and Philadelphia. He has covered the White House, Congress, the Pentagon and the State Department. He has covered major breaking news, including the White House shooting by gunman Francisco Duran, the D.C. Sniper Attacks, and the September 11th terrorist attacks. Martin was born in Washington, D.C., and grew up in the West Indies' twin-island nation of Trinidad & Tobago. The Scholarship shall be awarded to an undergraduate student in the Philip Merrill College of Journalism who demonstrates financial need and maintains good academic standing. This scholarship may be renewed each year if the student meets these criteria. Students must re-apply each year to be considered for renewal.

**John McNamara '83 Endowed Sports Journalism Scholarship.** This scholarship, funded by family and friends of 1983 Merrill College alumnus John McNamara, was created to recognize McNamara and his devotion to sports journalism, to allow others to learn from McNamara and his work, to develop and reward writers who demonstrate potential for producing accessible and informative sports journalism and to provide opportunity for talented students.

**Maryland-Delaware-DC Press Association Scholarship.** This scholarship is funded by the MDDC Press Association and is awarded to full-time undergraduate multi-platform (non-broadcast) students who are residents of Maryland, Delaware, or D.C. Recipients and must also have completed at least three semesters with an overall GPA of 3.0 or higher.

**Ron Menchine Broadcast Journalism Scholarship.** Established in 2013 with a bequest from the estate of Mr. Menchine, a 1956 Maryland graduate who was the last baseball broadcasting voice of the Washington Senators. In his earlier career, he was sports director of WBAL radio in Baltimore and WDCA-TV in Washington, and was a play-by-play announcer for Temple and Navy football games. The Menchine fund awards scholarships to high-achieving broadcast students in the Merrill College.

**The David Mills Scholarship (The Diamondback).** The David Mills Scholarship is awarded annually to at least one student who will receive a $5,000 scholarship. The requirements include: they be a Diamondback (DBK) staffer with at least two semesters of experience; be full time (12 or more credits); and that they continue to work at the DBK for the two semesters that follow the award. The students are asked to submit an application and materials which should include writing, multi-media or other journalism samples. The final decision is made by David Simon (DBK and UMD alumnus), a current UMD professor from the English Department and a relative of the late David Mills for whom the award is named.

**Gertrude Poe Fund for Journalism Excellence.** An endowed fund established in 1988 by the former editor, publisher and owner of the weekly Laurel News Leader in Maryland. Ms. Poe was the first female president of the Maryland-Delaware-D.C. Press Association and was inducted into to the MDDC Hall of Fame in 1987. Spendable income from the Poe fund supports student scholarships in the Merrill College, with preference given to students with an interest in community journalism.

**Frank Quine and Mary Ellen Doran-Quine Journalism Scholarship.** Funded by the College's former Assistant Dean Frank Quine and his wife, this scholarship is awarded to a high achieving multi-platform student (grad or undergrad) with financial need and high potential as a professional journalist.

**Stanley E. Rubenstein Memorial Journalism Scholarship.** Established by Ruth Ann Rubenstein '53 in memory of her husband, a 1953 economics graduate of Maryland, who became a leading New York City public relations executive. This scholarship is awarded to an outstanding undergraduate student based on financial need and academic merit.

**Richard W. Worthington Journalism Scholarship.** Named in memory of the late publisher of the weekly Bel Air, Md. Aegis newspaper. This scholarship is awarded to a multi-platform major (undergraduate or graduate) based on a combination of academic excellence, evidence of potential as a journalist and financial need. Preference given to a resident of Harford County, Maryland.

## From the University

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other University offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

The National Scholarships Office is committed to helping students of the University of Maryland identify, apply for, and win national scholarships and fellowships in their pursuit of higher education. They also help students find research opportunities in their fields of study.

## From Outside Sources

The Academy of Television Arts & Sciences — Fred Rogers Memorial Scholarship (http://www.emmys.com/foundation/programs/mister-rogers/) - The Academy of Television Arts & Sciences and the accounting firm, Ernst & Young, have created this $10,000 scholarship to support and encourage college students to go into the field of children's television. The scholarship is open to graduating seniors who are continuing on to graduate school and graduate students (Masters/Ph.D.).

Peter Agris Memorial Scholarships (http://www.alphaomegacouncil.org/scholarships/application-3/) - Five scholarships of $5,000 are available to journalism or communications graduate and undergraduate students of Greek American heritage. March 1 Deadline.

American Copy Editors Society Scholarships (https://aceseditors.org/awards/scholarships/) - All ACES scholarships are for potential professional copy editors. The scholarships are open to students who will be juniors, seniors or graduate students in the fall, and graduating students who will take full-time copy editing jobs or internships. Late November deadline.

American Society of Newspaper Editors (https://www.schooljournalism.org/future/) - Comprehensive listing of various journalism scholarships from ASNE via schooljournalism.org.

Asian American Journalist Association (https://www.aaja.org/news-and-resources/scholarships-internships/) - AAJA offers a variety of scholarships.

Association for Women in Sports Media Scholarship (http://awsmonline.org/internships-scholarships/) - AWSM offers an annual scholarship program for female college students who plan to pursue careers in any sports communications fields: writing, copy editing,

public relations, broadcasting, Internet or photography. Winners in each category receive a $1,000 scholarship.

The John Bayliss Broadcast Foundation (http://www.beaweb.org/bayliss/radio.html) - Juniors, seniors and graduate-level broadcast majors are encouraged to apply for the Bayliss Radio Scholarship.

CCNMA: Latino Journalists of California Scholarship (https://www.ccnma.org/general-1/) - Open to residents of California only.

Chips Quinn Scholars Program (http://www.newseuminstitute.org/initiatives/chips-quinn-scholars-program-for-diversity-in-journalism/) - Sponsored by the Freedom Forum, the program offers journalism students of color hands-on training, paid internships and $1,000 awards. Candidates must be nominated by the college to be considered for the program. Recent graduates are also encouraged to apply.

Evert Clark/Seth Payne Award for Young Science Journalists (https://casw.org/awards-fellowships/clark-payne/) - For nearly three decades, the Evert Clark/Seth Payne Award has recognized the contributions to journalism of both Ev Clark and Seth Payne. The Award is intended to encourage young science writers by recognizing outstanding reporting and writing in any field of science. The winner will receive $1,000 and expenses to attend the annual meeting of the National Association of Science Writers (NASW) and the New Horizons briefing of the Council for the Advancement of Science Writing (CASW) in October.

Freedom Forum — Al Neuharth Free Spirit Scholarship (http://freespirit.org/) - The Al Neuharth Free Spirit Scholarship and Conference Program annually awards $1,000 college scholarships to each of 102 high school seniors (a male and female from each state and the District of Columbia) who are interested in pursuing a career in journalism and who demonstrate qualities of “free spirit.”

Garden State Scholastic Press Association (https://gsspa.org/scholarships/) - Two scholarships are available from GSSPA for New Jersey high school students.

National Academy of Television Arts and Sciences, Chesapeake Bay Chapter — Betty Endicott Scholarship (http://www.capitalemmys.tv/students/scholarships/) - NATAS-DC will award scholarships ranging from $1000 to $5000 to full-time college sophomores, juniors or non-graduating seniors with a declared major in communications, television or broadcast journalism. March application with May announcement – check website for announcement.

National Association of Black Journalists Sustaining Scholarship Awards (https://nabjonline.org/) - This competition for two four-year sustaining scholarships is open to any graduating foreign or U.S. high school senior who plans to pursue a career in journalism. NABJ offers a number of additional scholarships as well. February deadline.

The National Association of Negro Business and Professional Women’s Clubs, Inc. (https://nanbpwc.org/education/scholarships/) - Offers two scholarships for African American students whose major can include journalism. March deadlines.

National Association of Hispanic Journalists Scholarships (https://nahj.org/next-generation/) - Open to high school grads, college and graduate students who are interested in a career in broadcast, photojournalism or print journalism. March 1 deadline.

The National Italian American Foundation (http://www.niaf.org/programs/scholarships/) - Scholarships open to Italian American students who demonstrate outstanding potential and high academic achievements or those students from any ethnic background majoring or minoring in Italian language, Italian studies, Italian American studies or a related field, who demonstrate outstanding potential and high academic achievements. Must have a membership in NIAF to apply and an ancestor who immigrated to the U.S. from Italy.

National Lesbian and Gay Journalists Association Leroy F. Aarons Scholarship Award (http://www.nlgja.org/students/aarons.htm) - Leroy F. Aarons and the Kay Longcope scholarships are awarded annually to students who demonstrate a commitment to providing fair and accurate coverage of the lesbian, gay, bisexual and transgender (LGBT) community. These annual scholarships are presented in honor of two prominent journalists. Applications will be available in late February. They will also have the Kay Longcope Scholarship which will be available at the same time.

National Press Club — Persina Scholarship for Minorities in Journalism (http://www.press.org/about/scholarships/) - Renewable scholarship for $2,500 per year for up to 4 years. For minority students planning to pursue a career in journalism. New: Richard G. Zimmerman Scholarship of $5000 (non-renewable.) The Press Club also offers a graduate-level scholarship.

New York Women In Communications Foundation Scholarship Program (https://nywici.org/advance/students/scholarships/scholarship-application/) - Open to high school seniors as well as undergraduate and graduate students. Scholarships are awarded on the basis of academic excellence, need and a demonstrated commitment to the field of communications.You must be a permanent resident of New York, New Jersey, Connecticut or Pennsylvania. Deadline January 30.

The NewsGuild — The David S. Barr Award (http://newsguild.org) - The David S. Barr Award is intended to recognize one high school and one college student for their journalistic achievement and to encourage young journalists to focus on issues of social justice. (Check the Newspaper Guild (now Newsguild.org) website for information about when applications will be accepted.)

The Overseas Press Club of America Foundation (http://www.overseaspressclubfoundation.org/programs.html) - Aspiring foreign correspondents and students interested in international journalism are encouraged to apply for OPC Foundation’s scholarship. The winners receive $2,000 checks each.

Radio Television Digital News Association and Foundation (https://www.rtdna.org/) - RTDNA and RTDNF honor professional achievements in electronic journalism through numerous prestigious awards, scholarships, fellowships and internship programs. April 30 deadline to apply.

Society of Professional Journalists Maryland Pro Chapter College Scholarship (http://www.spj.org/grants.asp) - Applicants must have regular home residence in the State of Maryland, but may attend colleges or universities outside Maryland in nearby Virginia, D.C. or Pennsylvania.

SPJ — Sigma Delta Chi Journalism Scholarships (http://sdxdc.org/) - The SDX Foundation of Washington, the educational arm of the Washington, D.C., Professional Chapter of the Society of Professional Journalists, will be awarding scholarships totaling up to $15,000 to full-time juniors or seniors.  Late February deadline.

South Asian Journalists Association Scholarships (http://www.saja.org/scholarships/) - The South Asian Journalists Association awards one

$500 scholarship to a high school senior about to enter college and one $500 scholarship to a college student.

For more information, and eligibility requirements, visit http://merrill.umd.edu/admissions/tuition-financial-aid/.

# Awards and Recognition

## Maryland-Delaware-District of Columbia Press Association Top Students

Awarded annually to an outstanding top broadcast journalism student and top multiplatform journalism student at commencement.

## Julie Galvan Outstanding Campus Member Award

The Society of Professional Journalists chapter selects one graduate in journalism who is outstanding in their class on the basis of character, service to the community, scholarship, proficiency in practical journalism and significant contributions to their SPJ chapter.

## Kappa Tau Alpha Top Scholar Award

Awarded at each commencement to the journalism student earning the highest academic achievement for all undergraduate study.

## Kappa Tau Alpha National Honor Society

The top ten percent of the journalism graduating class is inducted into this national organization each commencement.

# Special Advantages and Facilities

The Merrill College is home to many unique programs and opportunities available to undergraduate students:

## UMTV

Broadcast journalism students study and learn at UMTV, the college-owned cable TV station that houses state-of-the-art equipment, including DVCPro, Avid and ENPS systems used in the field today. Students begin their broadcast education from their first semester at the college, volunteering as crew members for programs produced under the guidance of renowned broadcast faculty members.

## Capital News Service

The college's Capital News Service operates news-editorial and multi-platform bureaus in College Park, Washington, D.C., and Annapolis, and a daily television newscast. CNS provides students with real-life reporting experiences covering a beat, developing sources, generating story ideas and writing on deadline under the supervision of a faculty editor.

## Real-World Experience

Students take their education out of the classroom and into the real world.  Using internships, student media and in-class reporting, our students don't just learn why, but how. The college is located just outside Washington, D.C., the country's seventh-largest media market.

## Top-Notch Faculty

The Merrill College is home to internationally renowned journalists and media scholars. Courses are also taught by working journalists who serve as adjunct professors.

## Access to Centers of Journalism Study

The Merrill College is home to several centers for journalism study and professional development. Undergraduates have opportunities to interact with these programs.

## Technology for the Real World

Students use the same technologies used by professional journalists and media specialists. From the latest in non-linear editing systems, to updated technologies for digital art and pagination, every undergraduate will have access to the software used by professionals in TV/radio production, visual journalism, online news and media communication.

# Journalism Major

**Program Director:** Rafael Lorente, Dean and Professor

The Philip Merrill College of Journalism prepares students for careers in newspapers, magazines, TV news, newsletters and online journalism outlets. The undergraduate journalism program culminates in a B.A. degree in journalism.

The College is fully accredited by the Accrediting Council on Education in Journalism and Mass Communications (ACEJMC).

Students learn in college programs such as Capital News Service, a daily wire service in College Park, Washington, D.C., and Annapolis and UMTV, a cable station operated by the college.

Students majoring in journalism take approximately one-third (42-48 credits) of their total coursework in the Philip Merrill College of Journalism. Journalism courses are designed to provide students with a working knowledge of the tools and concepts they will need to perform as top-flight professional communicators.  Courses offered by this department may be found under the following acronym: JOUR.

The remaining approximately two-thirds (74-80 credits) of undergraduate coursework consists of a variety of other subjects such as history, economics, government, sociology and psychology. This exposure acquaints students with fundamental problems and issues they will encounter in their careers. Within these credits, journalism students must choose a "Concentration" (a core of advanced work in a substantive field) to establish competency in a specialized area of knowledge they will be able to use as professionals.

# Program Objectives

## About the College

The Philip Merrill College of Journalism is widely considered one of the best journalism programs in the nation, blending a mix of prize-winning journalists, communication scholars and nationally recognized professional programs. The school's mission is simple: to produce the best possible journalists for leading newspapers, magazines, TV, radio and online news outlets. Recent graduates are editors, reporters and producers at The New York Times, The Washington Post, CBS, Los Angeles Times, CNN and many of the nation's other top news organizations.

Located less than 10 miles from the news capital of Washington, students participate in internships during the academic year at The Washington Post, The (Baltimore) Sun, CNN, and a wide array of Washington news bureaus. In the summer, students intern at top news organizations around the country.  Broadcast news students produce and anchor a 30-minute nightly news show that reaches more than

400,000 households in suburban Washington on the college-operated UMTV station, and advanced students enroll in Capital News Service, an intensive reporting program in Washington, Annapolis and College Park. Students also participate in some of the school's professional programs.

## The Vision

The Philip Merrill College of Journalism is shaping the future of news and media. As the top journalism school in the Washington, D.C., region and a global leader in journalism education, the college is committed to promoting a strong and independent free press.

- Through its faculty and curriculum, the Merrill College champions the fundamental journalistic values of accuracy, accountability and fairness, and is a trailblazer in using digital and multimedia technologies in dynamic storytelling.
- It prepares its undergraduate students for success in today's exciting and innovative journalism landscape and gives its graduate students the skills and confidence to rise to the top of today's demanding news and media-dependent professions.

## The Mission

The college educates students at the undergraduate, master's and doctoral levels within a liberal arts context, preparing them for careers in journalism and related fields, as well as careers in academic research and teaching.

- The college works to elevate professional and ethical standards of practice and advocates for increased public knowledge and involvement in democratic processes through dissemination of news.
- The mission of the college is to improve the production, delivery, and access to news, as well as to enhance the understanding of journalism's political, cultural and social roles in the United States and around the globe.

Our undergraduate mission is an uncompromising dedication to the principles of the journalism profession, with training in evolving types of news gathering and delivery.

Our professional master's program provides a post-graduate education to those with a host of undergraduate degrees seeking to enter the field and intensive specialized training for mid-career journalists with a particular focus on investigative, sports, security and computational journalism.

# Program Learning Outcomes

1. Demonstrate the ability to research, write, report and edit relevant news stories acceptable by a professional news outlet.
2. Understand the history of journalism, its relationship with diverse groups in society and its historic special role in a democratic society.
3. Understand the ethical guidelines and practices that govern the profession and the legal implications and considerations that inform the profession.
4. Demonstrate the ability to apply tools, concepts and technology appropriate for the profession.
5. Conduct research and evaluate information by methods appropriate to the profession.
6. Apply basic numerical and statistical concepts appropriate for the profession.
7. Demonstrate knowledge of grammar, spelling, punctuation and syntax and an ability to apply Associated Press style to news stories in a manner acceptable to professional news outlets.
8. Demonstrate preparedness for the media job market through resumes and published clips.

# REQUIREMENTS

Students are required to earn a minimum of 122 credits. Accredited journalism programs require majors to complete successfully approximately two-thirds of their coursework in areas other than journalism and communication. The Philip Merrill College of Journalism at the University of Maryland adheres to this nationwide policy. In practical terms, this means that of the 122 minimum credits required for graduation, a journalism student must take 42 credits (and may take up to 48) in journalism (numbered 100 or above). Of the remaining 74-80 credits, a minimum of 65 must be earned in liberal-arts designated courses.

The Philip Merrill College of Journalism stipulates that 57 of the total credits must be taken in upper-level courses (courses numbered 300-499).

Required courses for all journalism majors, whether primary or secondary major:

| Course | Title | Credits |
|---|---|---|
| **Journalism Requirements Outside the College** | | |
| Abstract thinking skills requirement: | | |
| Select one of the following: | | 3 |
| BIOM301 | Introduction to Biometrics | |
| BMGT230 | Business Statistics | |
| CCJS200 | Statistics for Criminology and Criminal Justice | |
| ECON230 | Applied Economic Statistics | |
| ECON321 | Economic Statistics | |
| EDMS451 | Introduction to Educational Statistics | |
| GEOG306 | Introduction to Quantitative Methods for the Geographical Environmental Sciences | |
| GVPT422 | Quantitative Political Analysis | |
| INST314 | Statistics for Information Science | |
| JOUR405 | Breaking News With Numbers: Statistics for Journalists | |
| PSYC200 | Statistical Methods in Psychology | |
| SOCY201 | Introductory Statistics for Sociology | |
| STAT400 | Applied Probability and Statistics I (or a more advanced statistics course.) | |
| Select a minimum of 6 credits through one or a combination of the following options: [1] | | 6 |
| Language [2] | | |
| Math/Statistics/Computer Science [3] | | |
| Public Speaking: | | |
| Select one of the following: | | 3 |
| COMM100 | | |
| COMM107 | Oral Communication: Principles and Practices | |
| COMM200 | Critical Thinking and Speaking | |
| COMM230 | Argumentation and Debate | |
| History: | | |
| HIST200 | Interpreting American History: Beginnings to 1877 | 3 |
| or HIST201 | Interpreting American History: From 1865 to the Present | |

| | | |
|---|---|---|
| Behavioral or Social Science: | | |
| Select one of the following: | | 3 |
| ANTH260 | Introduction to Sociocultural Anthropology and Linguistics | |
| PSYC100 | Introduction to Psychology | |
| or PSYC221 | Social Psychology | |
| SOCY100 | Introduction to Sociology | |
| or SOCY105 | Understanding Contemporary Social Problems - Frameworks for Critical Thinking and Strategies for Solutions | |
| Economics: | | |
| ECON200 | Principles of Microeconomics | 3 |
| or ECON201 | Principles of Macroeconomics | |
| Government and Politics: | | |
| GVPT170 | American Government | 3 |
| Supporting Area: | | |
| Select 4 upper upper-level courses for a minimum of 12 credits in a supporting field [4] | | 12 |
| Select four additional upper-level courses for a minimum of 12 credits [4] | | 12 |
| **Journalism Course Requirements** | | |
| JOUR152 | Introduction to Storytelling with Code | 1 |
| JOUR200 | Journalism History, Roles and Structures | 3 |
| JOUR201 | News Writing and Reporting I | 3 |
| JOUR320 | News Writing and Reporting II: Multiplatform | 3 |
| JOUR352 | Interactive Design and Development | 3 |
| JOUR396 | Supervised Internship | 2 |
| JOUR402 | Journalism Law and Ethics | 3 |
| **Journalism and Society Course (One JOUR course from the 410-469 range)** | | **3** |
| **Media Research Course (One JOUR course from the 470-479 range)** | | **3** |
| **Menu 1 - Visual Menu (One course from the following):** | | **3** |
| JOUR347 | News Videography | |
| JOUR370 | Photojournalism | |
| **Menu 2- Exploration Menu (One course from the following):** | | **3** |
| JOUR202 | News Editing | |
| JOUR347 | News Videography | |
| JOUR360 | News Writing and Reporting II: Broadcast | |
| JOUR370 | Photojournalism | |
| JOUR371 | Feature Writing | |
| **Journalism Capstone Experience** | | **3-9** |
| **Upper-Level Courses of Choice. A minimum of 9 credits must be upper-level JOUR courses, at least 6 of which must be upper-level skills courses in the 321-389 range.** | | **9-15** |

1 Should a student choose to combine the options, at least one language course must be at the intermediate level

2 Up to two courses with at least one course at the intermediate level and no more than one course at the introductory level. (High school equivalency does not satisfy this requirement.)

3 Up to two courses:

- Any mathematics (MATH) course numbered 107 or higher.
- An approved programming course worth at least three credits, please refer to this page for a current list (https://merrill.umd.edu/degrees-programs/bachelors-degree/).

4 Numbered 300 or higher, cannot be in Communication.

# Specializations

For students seeking to develop skills in particular areas, the Philip Merrill College of Journalism offers optional specializations that fit inside the curricular requirements.

## Broadcast Specialization

| Course | Title | Credits |
|---|---|---|
| JOUR347 | News Videography | 3 |
| JOUR360 | News Writing and Reporting II: Broadcast | 3 |
| An approved capstone [1] | | 3-9 |
| **Total Credits** | | **9-15** |

1 Several broadcast capstones also require JOUR361

## Investigative Reporting Specialization

| Course | Title | Credits |
|---|---|---|
| JOUR343 | Investigative Reporting | 3 |
| or JOUR353 | News Bureau: Multimedia Reporting | |
| JOUR472 | Data Journalism | 3 |
| An approved JOUR seminar course in the 410-469 range | | 3 |
| **Total Credits** | | **9** |

## Sports Specialization

| Course | Title | Credits |
|---|---|---|
| Sports skills JOUR course from the 321-389 range | | 3 |
| Sports discussion/seminar JOUR course from the 410-469 range | | 3 |
| Sports capstone course [1] | | 3-9 |
| Sports experiential course (an approved sports internship for JOUR396 or a second sports-focused capstone course) | | 2-6 |
| **Total Credits** | | **11-21** |

1 If taking a second capstone for the sports experiential course, limit each to 6 credits

# Specific Journalism Requirements

- Completion of JOUR201: Students must complete JOUR201 with a "C-" or higher. Consult the Undergraduate Catalog or online Schedule of Classes for a list of prerequisites and restrictions for journalism courses.
- "C-" Requirement: Students must earn a "C-" or higher in the following courses in order to have them count for the major: JOUR152, JOUR200, JOUR201, JOUR202, JOUR320, JOUR347, JOUR352, JOUR360, JOUR361, JOUR370, JOUR371, JOUR402 and any course that qualifies as a Capstone Experience. This minimum grade must be achieved prior to taking courses which the aforementioned courses serve as a prerequisite.

## Placement in Courses

Enrollment in JOUR201 requires proof of grammar competency through the attainment of at least a "C-" in JOUR181 or a score of 80 or higher on the grammar diagnostic exam, completion of ENGL101 (or another FSAW course) with at least a "C-" and completion of JOUR200 with at least a "C-".

# GRADUATION PLANS

Click here (https://drive.google.com/file/d/1t2BhLenni9wZ-BpANJuGXEwk108Xmua7/) for roadmaps for graduation plans in the Philip Merrill College of Journalism.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# School of Public Health

2242 SPH Building
Phone: 301-405-2438
http://sph.umd.edu

**Dean:** Boris Lushniak, M.D.
**Associate Dean:** Amelia Arria, Ph.D.
**Assistant Deans:** Nicole Cousin-Gossett, Ph.D., Amanda Grimes, Sylvette LaTouche-Howard, Ph.D., Erin McClure, Tracy Zeeger, Ph.D.

The mission of the School of Public Health is to promote and protect the health and well-being of the diverse communities throughout Maryland, the nation and the world through leadership and collaboration in interdisciplinary education, research, practice, and public policy. The school provides preparation leading to the Bachelor of Science degree in the following professional areas: Kinesiology, Community Health, Family Science, Global Health and Public Health Science. Additionally, stellar students may apply in the junior year to the combined Bachelor of Science/Masters in Public Health (MPH) program, allowing the completion of both degrees within 5 years.

The School of Public Health is fully accredited through the Council on Education for Public Health.

## DEPARTMENTS

### Departments and Units

- Behavioral and Community Health (p. 463)
- Family Science (p. 465)
- Global, Environmental, and Occupational Health (p. 468)
- Kinesiology (p. 470)
- Public Health Science (p. 475)

## ACADEMIC PROGRAMS

### Majors

- Family Science Major (p. 467)
- Global Health Major (p. 469)
- Kinesiology Major (p. 472)
- Public Health Practice Major (p. 464)
- Public Health Science Major (p. 475)

## ADVISING

The School of Public Health's Center for Academic Success and Achievement serves all students, particularly upon entry into the major. Following the first semester at College Park, students are encouraged to see their departmental advisors. It is strongly recommended that students seek regular advising throughout their academic career.

For student athletes and students currently on probation, advising is mandatory. Please see the CASA website: http://sph.umd.edu/academics/advising-resources/undergraduate-center-academic-success-and-achievement/.

## OPPORTUNITIES

### Global Public Health Scholars Living and Learning Community

The School of Public Health offers a Global Public Health Scholars program within the College Park Scholars Living and Learning Communities. For more information please refer to http://scholars.umd.edu.

### College Honors Program

For specific departmental honors program admissions information and requirements, please refer to the individual departments.

### Approved Student Societies and Professional Organizations

#### Phi Alpha Epsilon

Honorary Society of the School of Public Health. The purpose of this organization is to recognize academic achievement and to promote professional growth by sponsoring activities in the fields of kinesiology, family science, community health, public health science and related areas.

Students qualify for membership when they attain junior standing in kinesiology, family science, public health science or community health, and have a minimum overall average of 3.5 and a minimum of 24 credits at the University of Maryland, College Park. For additional information, please contact the Center for Academic Success and Achievement.

The School of Public Health is also home to the university-wide Public Health Beyond Borders organization. For more information, please see http://sph.umd.edu/student-opportunities/student-organizations-honor-societies-and-honor-programs/public-health-beyond-borders/.

### Student Engagement and Service Units

#### Center for Academic Success and Achievement

0222 School of Public Health Building
Phone: 301-405-2753
http://sph.umd.edu/advising/

The Center for Academic Success and Achievement provides advising on admissions, orientation, academic policy, 4-year planning, career information, and required advising for students on academic probation or dismissal and all college athletes. The center collaborates with the departments in recruitment, retention and graduation initiatives. The center is open from 8 a.m. - 4:30 p.m. weekdays for use by students for studying and group meetings. There are twelve computers available for student use.

#### Gymkana Troupe

1120 SPH Building
Phone: 301-405-2566
http://gymkana.umd.edu

**Director:** Josh Montfort

For over 75 years, the University of Maryland Gymkana Troupe has been influencing young people to live healthy lifestyles. Founded at the University of Maryland College Park campus in 1946, the troupe has traveled throughout Maryland and neighboring states promoting drug-

free living. Each of its 60+ members pledges themselves to be drug-free. Through their role-modeling and unique gymnastic performances, they have influenced hundreds of thousands of people to join them in living a drug-free life. The troupe, which is open to all University of Maryland students of all abilities, is considered a one-of-a-kind organization and is believed to be the only collegiate exhibitional gymnastic troupe actively touring the United States. As an outreach program of the School of Public Health, the Gymkana Troupe uses peer role models who share their experiences and their message of healthy living with others. Students influencing students to avoid drugs is the heart of Gymkana's program.

### Public Health Beyond Borders

http://sph.umd.edu/student-opportunities/student-organizations-honor-societies-and-honor-programs/public-health-beyond-borders/

**Director:** Dr. Elisabeth Maring

### STEP Program

**Director:** Ms. Tia Cunningham

The STEP Program is a professional training program designed to help students gain practical knowledge and develop essential skills to succeed in a professional work environment. This program was specifically designed to work with undergraduate students in the UMD School of Public Health. Through a series of workforce training workshops, students will enhance their competencies in communication, leadership and cultural intelligence. The STEP program allows students to embrace a supportive community and develop a professional network while in an active and engaging learning environment.

### Undergraduate Teaching Assistant Program

**Director:** Ms. Cynthia Kershaw

The Undergraduate Teaching & Education Assistants and Mentors (UTEAM) Program facilitates peer educational support in the School of Public Health through peer mentoring and teaching assistance. The UTEAM Program is a **combination of experiences** designed to provide foundational knowledge to successfully support peer education and in-class, hands-on experiences within your major, The UTEAM members are dedicated student learners who provide peer educational support for a specific course as part of the teaching team. Working closely with faculty and graduate assistants, UTEAM members are an asset to the SPH learning community. This program is open to undergraduate students in the School of Public Health at the College Park Campus and requires a co-requisite enrollment in SPHL333 and SPHL399.

### Financial Assistance

The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For more information, visit: http://financialaid.umd.edu.

## Awards

Awards within the School of Public Health include the Jerry P. Wrenn Scholarships, the Noel Myricks Endowed Scholarship, the Ned Gaylin Endowed Scholarship, the Jeanette Spier Beavers Memorial Scholarship, the Andrew Billingsley Endowed Scholarship, the David Hyde Scholarship, the Doris Sands Scholarship, the Quinn Scholarship, the Alice Morgan Love Scholarships, NASPE Major of the Year Award, EDA/AAPHERD Outstanding Future Professionals Awards, the Dean's Senior Scholars Awards the Fraley Award, and several TerpStart Scholarships.

## Departments and Centers

The School is composed of several centers, departments and institutes. The Centers for Health Equity, Health Literacy, Prevention Research, Aging, Health Behavior Research and Young Adult Health and Development offer multiple opportunities for students to engage with faculty mentors in funded research projects. The following departments offer major programs that lead to a Bachelor of Science degree:

- Department of Behavioral and Community Health
- Department of Family Science
- Department of Kinesiology
- Public Health Science (at both the College Park and Shady Grove campuses)

## Special Advantages and Facilities

The Friedgen Family Student Lounge, located in the SPH Building is available for use by all students in the college between 7 a.m. and 10 p.m. Access is through the student ID card. See the Director of Facilities in 3310 SPH Bldg if you do not have access. The Student Service Center, 2242C SPH, has study areas and computers available to SPH students from 8 a.m. - 4:30 p.m. daily. Occasionally, availability and access are limited due to classes and student programs.

The school also offers several specialized laboratories related to student success, technology and specific course applications.

## Research Units

See all the School of Public Health research centers here: http://sph.umd.edu/research-impact/research-centers/.

### Center on Aging

The Center on Aging, as part of the Department of Health Services Administration (a graduate program), stimulates and supports aging-related activities within existing departments, colleges, and schools throughout all of the various institutions of the University System of Maryland. The center coordinates the Graduate Gerontology Certificate (master's and doctoral levels), the university's first approved graduate certificate program. The center assists undergraduate and graduate students interested in the field of gerontology and helps them to devise educational programs to meet their goals. It is a research center working in health and aging policy, lifelong learning and civic engagement, disability and aging, behavioral and social aspects of aging, and health service delivery systems. It also conducts community education programs, assists faculty in pursuing research activities in the field of aging, conducts conferences on adulthood and aging-related topics, provides on- and off-campus technical assistance to practitioners who serve older adults and sponsors the University of Maryland Osher Lifelong Learning Institute, Legacy Leadership Institutes, the University of Maryland Retirees Association, and Retired and Senior Volunteer Programs International (RSVPI).

### Herschel S. Horowitz Center for Health Literacy

The Herschel S. Horowitz Center for Health Literacy has been established to address the major public health problem of poor health literacy and its effect on health outcomes. This is the nation's first academic based health literacy center and is devoted to improving health through the lifespan with emphasis on closing the health disparities gap. Research

is needed to establish the nature of the casual relationships between and among the various factors including culture and society, education systems, health systems and health outcomes and costs to develop effective interventions and health policy. The center was established with a generous gift from Alice Horowitz and her family.

### Maryland Center for Health Equity

The Maryland Center for Health Equity is designed to address issues connected with health disparities. The emphasis is on creating effective change from the level of the individual to issues at the macro policy level. The director is Dr. Stephen Thomas. For more information, please contact the Center at 3302E, School of Public Health Building, 301 405-8859.

### The University of Maryland Prevention Research Center

The University of Maryland Prevention Research Center (UMD-PRC) is committed to research, service and training around issues of mental health among LGBTQ+ communities. We bring awareness to inequities, as well as disseminate data, validate tools and best practices to improve access to quality mental health and health care for these communities.

Bradley O. Boekeloo, ScM, PhD
Professor, Department of Public and Community Health
Director, Prevention Research Center
University of Maryland School of Public Health
College Park, MD 20742
Office: 301-405-8546
Cell: 202-841-8546

# Behavioral and Community Health

**School of Public Health**
1234 School of Public Health Building
Phone: 301-405-2463
behavioralandcommunityhealth@umd.edu
http://sph.umd.edu/undergraduate-degrees/bs-public-health-practice/

**Director of Undergraduate Studies:** Tracy Zeeger, Ph.D. (tzeeger@umd.edu)

The Bachelor of Science in Public Health Practice prepares students to effectively plan, develop, implement and evaluate community health education programs. Students in this program are exposed to material in health behavior, community health research, biostatistics, epidemiology, grant writing, health communication and professional development.

Behavioral and community health uses an ecological framework to identify the causes of and solutions for inequalities in the health of individuals, groups, and communities. The process of promoting health for all individuals is viewed as complex and multidimensional, thus it requires the perspectives of many stakeholder groups. Practitioners and researchers in this public health field use theory, evidence-based practices, and community-based strategies to improve health and well-being. By understanding the different aspects of behavioral and community health, students are able to actively engage with communities to develop approaches and solutions to everyday health issues.

Behavioral and community health also seeks to improve the public's health through the application of social and behavioral sciences. Through studying behavior, graduates are able to not just understand disease, but are also able to modify the incidence, prevalence, and mortality rates of many diseases that affect the communities in which we live. Additionally, community health specialists promote more efficient uses of health services, adopt self-care practices, and participate actively in the design and implementation of health programs.

The Department of Behavioral and Community Health works to establish community relationships in order to develop community interventions. The faculty and students of this department promote and foster active collaboration with researchers and community partners from many different specialties and institutions. By working with the University of Maryland, the department has established several partnerships and research and service centers that work to actively engage the community in a variety of capacities.

## PROGRAMS

## Major

- Public Health Practice Major (p. 464)

## ADVISING

In the Public Health Practice major academic advising is mandatory in your first semester and in your senior year. It is recommended that students meet with an academic advisor once per semester at a minimum. To schedule an academic advising appointment with a BCH Academic Advisor or a BCH Academic Advising Graduate Assistant, go to our website (https://sph.umd.edu/academics/departments-units/department-behavioral-and-community-health/student-resources-and-programs-behavioral-and-community-health/undergraduate-student-resources-community-health/undergraduate-advising-behavioral-and-community-health/).

## OPPORTUNITIES

## Internships

### HLTH491: Public Health Practice/Community Health Internship

HLTH491: Public Health Practice/Community Health Internship is a unique and rewarding experience that provides the Department of Behavioral and Community Health undergraduates with the opportunity to work in a mentored, professional, public/community health setting prior to graduation. This required internship is completed during the student's final semester after all other academic requirements have been successfully completed. HLTH491 is a 12 credit, 36 hours per week (15 weeks) requirement, and should be considered a full-time commitment. Students may not enroll in other classes during the internship semester.

HLTH491 may be completed during the fall, spring, or summer semesters; for planning purposes, summer internships require an application. Questions related to HLTH491: Public Health Practice/Community Health Internship may be directed to Tracy Kennedy, Undergraduate Internship Program Manager, at kennedyt@umd.edu.

## Public Health Practice Honors Program

The Department of Behavioral and Community Health Honors Program offers undergraduates the opportunity to engage in challenging educational experiences related to social and behavioral aspects of public health. Rising juniors with strong academic records and significant interest in intellectual pursuits are invited to apply for this opportunity to partake in independent, mentored, scholarly work.

Students interested in the Public Health Practice Honors Program must meet the following requirements:

- Student in the Public Health Practice major
- Overall GPA of 3.0 or higher
- Have successfully completed at least 3 HLTH courses (9 credits) with a major GPA of 3.5 or higher
- Must have taken HLTH200 by the start of the program
- Have completed 45 total credits before applying to the program (students should be of junior standing [approximately 60 credits] by the first semester in the program)
- Ideally, have at least 2 semesters left of coursework before the BCH internship

Program highlights include:

- Working one on one with a Department of Behavioral and Community Health faculty member on a thesis/project
- Graduating with the distinction of departmental honors
- Ability to take HONR seminars and be a part of the UMD Honors College
- Access to HLTH410, a small, seminar-style Honors Program course to develop personal interests and professional skills

Interested students may learn more about the Public Health Practice Honors Program by going to: http://sph.umd.edu/undergraduate-degrees/bs-public-health-practice/ or contacting Dr. Kerry Green, Honors Program Director, at greenkm@umd.edu.

## Eta Sigma Gamma

Eta Sigma Gamma is the only National Professional Honorary in Health Education. Since being revitalized in 2017, the Epsilon Chapter of Eta Sigma Gamma (ESG) has proudly excelled in the areas of service, academics, and membership growth. Through our philanthropy and social activities, members find lifetime friendships and valuable connections for the future.

All community health majors (graduate and undergraduate) are welcome to join. Initiation of members occurs once per year. To be eligible for initiation members must:

- Attend meetings regularly
- Participate in at least 2 events per semester
- Maintain a GPA of 2.7 or higher

For more information visit: http://terplink.umd.edu/organization/etasigmagamma/.

## Badge Specializations

Students can take a cluster of courses in a specific area while earning health elective credit to earn a badge in one of three areas: special populations, health communications, or health risk behavior. Students strengthen their knowledge in a specific area of interest and can cite their badge specialization area on their resume, cover letter, or graduate school application.

## Scholarships and Financial Assistance

The Office of Student Financial Aid administers all types of federal, state, and institutional financial assistance programs, and in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, go to: http://financialaid.umd.edu.

The School of Public Health also provides some scholarships for undergraduate students in need, including the Jerry P. Wrenn Endowed Scholarship, the School of Public Health Student Emergency Scholarship, the SPH Scholarship Fund, and TerpStart Scholarships. To learn more about School of Public Health scholarships, go to: http://sph.umd.edu/content/financing-your-degree/.

Additional information on UMD-related financial resources can be found at http://sph.umd.edu/content/student-resources-and-services/, by clicking the “Financial/Resource Assistance” link.

## Awards and Recognition

Each spring, the Department of Behavioral and Community Health recognizes a select few exceptional BCH undergraduates and graduates by honoring them with awards in recognition of their achievements at the annual School of Public Health Convocation.

# Public Health Practice Major

**Program Director:** Tracy Zeeger, Ph.D.

The Bachelor of Science in Public Health Practice is an interdisciplinary public health degree program rooted in social and behavioral science and theory and focused on making meaningful contributions to impact health and quality of life at all levels of society. Students learn to address the complex individual, community, and societal factors impacting health through a highly-structured, professionally-focused program that culminates in a full-time, mentored internship during the final semester.

The program is designed to serve as a gateway to graduate studies or as a transition directly to the field as an engaged, prepared, and well-informed public health practitioner. During the program, students have opportunities to learn outside of the classroom through volunteer work, study abroad opportunities, collaboration with departmental faculty through independent study, work at the University Health Center for credit, and public health-related student groups.

Graduates of the Public Health Practice major pursue careers in research, advocacy, policy, health education, social work, community outreach, and other public health related areas. They work locally, nationally, and internationally primarily through foundations, non-profit organizations, and government services.

## Program Learning Outcomes

As a result of the Bachelor of Science in Public Health Practice degree program, students will be able to:

1. Discuss the history and philosophy of public health as well as its core values, concepts, and functions across the globe and in society.
2. Use basic public health concepts, methods, and tools for data collection and analysis.
3. Identify the major health-related needs and concerns of populations and formulate basic processes, approaches, and interventions as possible solutions.
4. Describe the underlying science of human health and disease including opportunities for promoting and protecting health across the lifespan.

5. Examine the socio-economic, behavioral, biological, environmental, and other factors that impact human health and contribute to health disparities.
6. Demonstrate the fundamental concepts and features of project implementation, including planning, assessment, and evaluation.
7. Compare and contrast the fundamental characteristics and organizational structures of the health systems of the United States and other countries.
8. Characterize the basic concepts of legal, ethical, economic, and regulatory dimensions of health care and public policy.
9. Illustrate the basic concepts of public health-specific writing and communication.
10. Assess and communicate individual and community-level needs for health promotion and disease prevention.
11. Create and apply strategies that effectively incorporate cultural competences with health promotion and community health initiatives.
12. Synthesize and apply principles and theories of community health that are needed for the development of effective and evidence based health promotion and disease prevention strategies.
13. Promote and advocate for effective community health initiatives at the local, state, and federal levels.
14. Collaborate with community organizations to apply public health principles in a real-world setting.
15. Demonstrate requisite competencies in professional etiquette and career readiness to allow for a successful transition into the workplace (adapted from NACE).
16. Critically analyze the impact racism has on population health and reflect on what it means to be anti-racist.

## REQUIREMENTS

The total number of credits required to graduate with a Bachelor of Science degree in Public Health Practice is 120, and the number of Public Health Practice major-required course credits is 69. Students must earn a grade of C- or higher in all Public Health Practice major-required coursework. HLTH491, Community Health Internship, is completed during the final semester in the Public Health Practice major, after all other coursework has been successfully completed. Students can elect to complete an area of specialization in selected areas (Special Populations, Health Communication, Health Risk Behavior).

| Course | Title | Credits |
|---|---|---|
| **Public and Community Health Core** | | **13** |
| SPHL100 | Foundations of Public Health | |
| HLTH124 | Introduction to Behavioral and Community Health | |
| EPIB301 | Epidemiology for Public Health Practice | |
| EPIB315 | Biostatistics for Public Health Practice | |
| HLTH306 | Macro Level Influences on Community Health | |
| **Public and Community Health Foundational Science** | | **8** |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | |
| BSCI201 | Human Anatomy and Physiology I | |
| **Social and Behavioral Public Health** | | **9** |
| HLTH200 | Introduction to Research in Community Health | |
| HLTH230 | Introduction to Health Behavior | |
| HLTH364 | Social Media & Digital Tools for Community & Public Health | |
| **Community Public Health** | | **9** |
| HLTH140 | Personal and Community Health | |
| HLTH302 | Methods of Community Health Assessment | |
| HLTH391 | Making a Difference: Applying Community Health | |
| **Health Electives** | | **12** |
| Students can select from a pre-approved list of 3-credit health elective offerings | | |
| **Professional Preparation** | | **18** |
| HLTH420 | Effective Strategies for Public Health Practice | |
| HLTH490 | Professional Preparation in Community Health | |
| HLTH491 | Community Health Internship | |
| **Total Credits** | | **69** |

## GRADUATION PLANS

Click here (http://sph.umd.edu/content/four-year-plans/) for roadmaps for graduation plans in the School of Public Health.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Family Science

**School of Public Health**
1142 School of Public Health, Bldg. 255
Phone: 301-405-3672
fmsc@umd.edu
http://sph.umd.edu/fmsc/

The major in Family Science focuses on the study of families and the problems they face in contemporary society. The major offers excellent training in scientific methods to understand family development, behavior, and strengths, and to solve family problems. Students learn to describe, explain, and improve the quality of family life through education, applied research, policy analysis, and human services program management. For additional information on the field of family science, please visit the National Council on Family Relations website: family.science (http://family.science/).

## PROGRAMS

## Major

- Family Science Major (p. 467)

## ADVISING

Academic Advising is provided to students in the Family Science Department by the Undergraduate Program Manager, Anna Lacy. The goal of the Family Science undergraduate advising office is to provide transitional and ongoing support for students, to ensure they can make informed decisions concerning their academic plans and professional/personal goals. Students can meet with their advisor to discuss their academic progress or academic standing, confirm they are on track for graduation and completion of all degree requirements, to discuss

problems impacting their academic performance, etc. Students can schedule appointments with their advisor through TerpEngage. Students can also receive advising support through the School of Public Health Center for Academic Success and Achievement (CASA).

# OPPORTUNITIES

## Undergraduate Research Experiences

The department has an active Undergraduate Research Assistant Program, which enables students to learn from and work with world-class scholars on family issues. Family Science undergraduates volunteer to assist Department faculty with their ongoing research projects on topics including:

- African American Families
- Couple Relationships
- Ethnicity & Families
- Family and Community Violence
- Family Financial Education
- Family Law
- Family Policy
- Fathering
- Latino Families
- LGBTQ Families
- Maternal and Child Health
- Mental Health/Addiction/Family Therapy
- Minority Populations
- Health
- Parenting
- Poverty
- Reproductive Health
- Vaccine Behavior

Undergraduate students who participate in Family Science research may also participate in the Maryland Center for Undergraduate Research and serve as research assistants. These research opportunities particularly benefit students who are applying to graduate school.

The department also participates in several other undergraduate research programs, such as the Senior Summer Scholars Program and the Ronald E. McNair Post-Baccalaureate Achievement Program. Students may also set an appointment with Undergraduate Program Director to answer questions and learn about current undergraduate research projects in Family Science.

## Internships

All Family Science majors are required to complete an internship experience as part of the major. The internship program is a capstone project designed to integrate department and other coursework with a real-time work experience that focuses on healthy families. In addition to a 120-hour semester-long field placement, students are required to attend a capstone seminar (FMSC477). Students in the seminar integrate classroom theory with their field placement and share work-related activities, broadening their exposure to work in the discipline of Family Science and their knowledge of specific career opportunities. In addition, the seminar focuses on students' cultural competence in the workplace. Each approved internship must have a significant focus on the family unit, incorporating the needs and concerns of the family in addition to those of the individual. Interns will be expected to utilize Family Science theories and concepts throughout the accompanying seminar to evaluate their internship experience. Therefore, it is essential that the internship responsibilities relate directly to family.

Students who need help deciding on an internship have access to the **FMSC Internship Database**, which contains listings of organizations that have requested our students along with those where Family Science students have completed internships.

The internship course is open to all FMSC majors who have completed FMSC330 and FMSC383 plus a minimum of six additional credits of FMSC coursework. The internship contract forms and supervisor's letter are available online (https://sph.umd.edu/academics/departments-units/department-family-science/student-resources-family-science/undergraduate-student-resources-family-science/). Students may also pick up the documents in the main FMSC office, 1142 School of Public Health Building.

There are strict deadlines for turning in completed contracts to the FMSC office:

- Spring Internship contract: Due the first Monday in December
- Summer internship contract: Due the first Monday in May
- Fall internship contract: Due the first Monday in August

## Honors Program

The FMSC Honors Program is designed to provide academically talented students with a more advanced and enriching educational experience in Family Science. The Honors Program gives students an opportunity to participate in scholarly independent study, interact with FMSC faculty, and examine a range of intellectual topics in greater depth than is possible in the traditional Family Science program. Students enroll in special Honors courses, Honors option work in regular courses, and independent research. The program culminates with the preparation and possible presentation of a Senior Honors Thesis.

FMSC majors who are interested in this additional challenging educational experience and meet the following criteria, may apply to the FMSC Honors Program:

- A UMD GPA of 3.3 with at least 45 credits completed
- A FMSC GPA of 3.5 and
- Completed FMSC290 with a grade of "B" or better and an additional three credits in FMSC

Or

- ECON200 and an additional six credits in FMSC

Students meeting the criteria and wishing to participate in the Honors Program must apply three semesters (not including summer) prior to graduation. More information and application forms are available on the FMSC website or from the FMSC Honors Program Coordinator, Dr. Mia Smith Bynum at msbynum@umd.edu.

## Student Societies and Professional Organizations

**Maryland Council on Family Relations (MCFR)** is a student chapter of the National Council on Family Relations, a professional organization for family researchers, educators, and practitioners. The organization provides an opportunity for students to explore family issues, meet fellow students, and prepare for careers in teaching, research, policy analysis,

or direct service to families. MCFR is open to all undergraduate and graduate Family Science students. For more information, please contact FMSC at http://sph.umd.edu/fmsc/.

**Phi Upsilon Omicron** is a nationally recognized honor society focused toward observing academic excellence, enhancing qualities of leadership by providing opportunities for service, and encouraging lifelong learning and commitment in order to advance family and consumer sciences and related areas. Members participate in community service activities on campus and in the surrounding Metropolitan DC areas. They also collaborate with MCFR to conduct informative workshops for members and other Family Science students on academic skills development, stress management, graduate school, and potential career paths with a Family Science degree. The Gamma Lambda Chapter has a local alumni chapter to provide our members with networking and other resources. Other membership benefits include additional networking opportunities through regional and national meetings, scholarship and fellowship awards, honor cords at graduation, and leadership opportunities at the chapter, regional, and national levels. For more information please contact the FMSC Undergraduate Academic Advisor, Kendyl Oliver.

## Scholarships and Financial Assistance

The Department of Family Science has several endowed scholarships that enable us to provide some assistance to meritorious students in our Family Science Program. Early in the spring semester the department announces the availability of the awards and begins the application process. Recipients are announced by May of each year.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

## Awards and Recognition

FMSC nominates meritorious students for recognition at the annual SPH Convocation for many prestigious awards including Dean's Scholars awards, the Jerry Wrenn Scholarship awards and the Lester M. Fraley award. For more information on FMSC department Scholarships and Awards, please see the FMSC website (https://sph.umd.edu/academics/advising-resources/undergraduate-center-academic-success-and-achievement/casa-scholarships/).

## Academic Programs and Departmental Facilities

The Family Science program is located in the UMD School of Public Health, which supports our faculty and students' public health-focused programs and encourages cross-collaborations with other SPH departments. FMSC's main office, room 1142, is open year-round (except university holidays), Monday through Friday, from 8:30 am to 4:30 pm. Students are encouraged to drop by for: advising or information about undergraduate programs; department courses and internships; faculty meetings and mentoring; and ways to get involved in departmental research and student activities.

# Family Science Major

**Undergraduate Program Manager and Academic Advisor:** Anna Lacy

The Department of Family Science promotes the physical, mental, and social well-being of all families in order to eliminate the burden of disease and health disparities, and to foster resilience and social justice. As one of the only Family Science departments in a school of public health in the US, the undergraduate program is uniquely positioned to train students in the study of family health. Faculty bring the synergies of multiple disciplines, including family science, couple and family therapy, human development, maternal and child health, psychology, epidemiology, and economics, to enhance family health and well-being.

The curriculum focuses on individual and family development over the life course, examining social, cultural, economic, and historical trends that affect family functioning, and their physical and mental health. Students learn to describe, explain, and improve the quality of family life through education, applied research, legal and policy analysis, and human services program management. The major offers excellent training in scientific methods, including data analyses, application, and communication. Required coursework examines challenges to family health, diverse families, mental health and trauma, global health, child/family development, maternal and child health, sexual and reproductive health, social inequality and health disparities, sexual and gender diversity, family law and economics, work and family issues, family crises, research methods, and the delivery of human services to families. As part of the required research course, all students design a study, collect data, prepare, and present an empirical research project prior to graduation.

Family Science graduates are the next generation of investigators, practitioners, and policy leaders who can tackle the complex health challenges facing families. The major prepares students for many career paths including family therapy, public health, family life education, social work, law, policy analysis, human services, nursing, and family mediation. A wide variety of employment opportunities exist for Family Science graduates in direct service and management positions in government, non-profit, and private agencies. The major also provides excellent preparation for graduate study in family science, public health, marriage and family therapy, social work, professional schools such as medicine, nursing, dentistry and law, psychology, human resource management, and other social science disciplines.

Courses offered by this department are listed under the acronym **FMSC.**

## Admission to the Major

Upper-level students who wish to change or declare a major in Family Science can only do so through a Change of Major Workshop. To register for a workshop, visit the School of Public Health website (https://sph.umd.edu/academics/advising-resources/undergraduate-center-academic-success-and-achievement/casa-advising/casa-declare-sph-major/). Students must register in advance in order to attend a Change of Major Workshop. Freshman or admitted high school seniors may declare the FMSC major at orientation.

## Program Learning Outcomes

1. Students evaluate policy and programmatic interventions to address social and behavioral factors that influence family well-being.
2. Students demonstrate the principles of cultural competence that shape the experiences and disparities of vulnerable families and populations.
3. Students create a hypothesis, conduct research, prepare data and present a research project that addresses a significant issue of family well-being.
4. Students demonstrate basic knowledge of family theories and apply the knowledge to diverse contexts, including experientially in the required workshop.

5. Students analyze and critique the range of social structures and systems including health, legal, and economic that affect family well-being.

## REQUIREMENTS

*All students must earn a grade of "C-" or better in all courses applied toward completion of the major.*

| Course | Title | Credits |
|---|---|---|
| **Required Courses - Major Subject Area (45 Credits)** | | |
| SPHL100 | Foundations of Public Health | 3 |
| FMSC110 | Families and Global Health | 3 |
| FMSC260 | Couples, Marriage, and Families: Intimate Relationship Across the Life Course | 3 |
| FMSC302 | Research Methods in Family Science | 3 |
| FMSC310 | Maternal, Child and Family Health | 3 |
| FMSC330 | Family Health: Health Happens in Families | 3 |
| FMSC332 | Children in Families | 3 |
| FMSC340 | Mental Health and Healing in Families | 3 |
| FMSC374 | Working with Diverse Families in Public Health Services | 3 |
| FMSC381 | Family Inequality | 3 |
| FMSC383 | Health and Human Services Delivery and Evaluation | 3 |
| FMSC432 | Adult Development and Aging in Families | 3 |
| FMSC477 | Internship and Analysis in Family Science | 3 |
| FMSC487 | Family Law | 3 |
| FMSC431 | Family Crises, Emergencies and Interventions | 3 |
| or FMSC460 | Violence in Families | |
| **Required Courses - Department Electives** | | **12** |
| Two (2) 100-200 level FMSC courses (6 credits) | | |
| Two (2) 300-400 level FMSC courses (6 credits) | | |
| **Additional Courses Required of All Majors** | | |
| Select one of the following social sciences general courses: | | 3 |
| PSYC100 | Introduction to Psychology | |
| SOCY100 | Introduction to Sociology | |
| SOCY105 | Understanding Contemporary Social Problems - Frameworks for Critical Thinking and Strategies for Solutions | |
| Select one of the following statistics general courses: | | 3 |
| EDMS451 | Introduction to Educational Statistics | |
| STAT100 | Elementary Statistics and Probability | |
| Select one of the following communication general courses: | | 3 |
| COMM107 | Oral Communication: Principles and Practices | |
| COMM200 | Critical Thinking and Speaking | |
| INAG110 | Oral Communication | |
| Select one of the following economics general courses: | | 3 |
| FMSC290 | Family Economics | |
| ECON200 | Principles of Microeconomics | |
| ECON201 | Principles of Macroeconomics | |
| **Total Credits** | | **69** |

## GRADUATION PLANS

Click here (http://sph.umd.edu/content/four-year-plans/) for roadmaps for graduation plans in the School of Public Health.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Global, Environmental, and Occupational Health

**School of Public Health**
2234 School of Public Health Building
gbhl@umd.edu
https://sph.umd.edu/GEOH/

The mission of the Department of Global, Environmental, and Occupational Health (GEOH) is to promote and protect human health in the diverse communities across Maryland, the nation and the world through discovery, education, and innovative application of knowledge in the fields of global, environmental, and occupational health.

Our programs equip students to address current and future global health, environmental health, and occupational health issues through a multidisciplinary lens. In and out of the classroom, our faculty, students, and staff delve into today's grand challenges, from airborne infectious disease transmission and food and waterborne disease to environmental justice, cumulative risk assessment, and the impacts of climate change on human health and vulnerable communities.

## PROGRAMS

### Major

- Global Health Major (p. 469)

## ADVISING

Academic advisors are available to assist students with degree planning.

Students pursuing a BS in Global Health are required to meet with an advisor during their first semester in the major, and again once they have 75 cumulative credits. Students are encouraged to see an advisor each semester to ensure understanding of major requirements and to review their progress.

Academic advisors in Global, Environmental, and Occupational Health are available for drop-in advising or appointments. Schedules and links are posted on the Global Health major website, http://sph.umd.edu/gbhl-ug/.

## OPPORTUNITIES

### Global Learning

Students have multiple ways to expand the borders of their education in global, environmental, and occupational health.

Global classroom courses (https://marylandglobal.umd.edu/global-learning-all/global-learning-home/) connect students and faculty with peers in other countries to address international health issues through

collaborative projects. Study abroad (https://marylandglobal.umd.edu/global-learning-all/study-abroad/explore/) with a global health focus is possible during a semester or for shorter periods in summer and winter. Students enrolled in the Global Health Major are eligible to apply for the Peace Corps Prep program (https://sph.umd.edu/student-opportunities/peace-corps-prep-program/). Students can also take advantage of opportunities shared by the UMD SPH Global Health Initiative (https://sph.umd.edu/research-impact/research-centers/global-health-initiative/global-health-initiative/) to engage in projects in Maryland and around the world, including with the Public Health Beyond Borders student organization.

## Internships and Career Development

The University of Maryland's location in the Washington, DC, metro area is ideal for students considering careers in global, environmental, or occupational health. Students can engage with and learn from researchers and policy makers through SPH student opportunities (https://sph.umd.edu/student-opportunities/). The UMD Career Center at SPH collaborates with the department to offer networking events and prepare students to apply for internships with government agencies, international organizations, nonprofits and private sector employers. GEOH students interested in policy are encouraged to consider applying for the Global Fellows in Washington, DC (https://www.globalfellowsdc.umd.edu/), program.

## Undergraduate Research Experiences

Students may assist as research assistants in projects led by GEOH faculty, including the Public Health Aerobiology (PHAB) Lab; the CONSERVE Center of Excellence; the Community Engagement, Environmental Justice, and Health(CEEJH) program; the Water Quality, Outreach and Wellness (WOW) Lab; and the newly launched Global FEWture Alliance, funded by a Grand Challenges Institutional Grant.

The UMD Office of Undergraduate Research (https://our.umd.edu/) supports students' engagement in research across campus. SPH students are encouraged to share their research at the annual Public Health Research and Practice Day (https://sph.umd.edu/research-impact/public-health-research-and-practice-day/).

## Combined Bachelor's/Master's Program

Global Health majors may be eligible to apply to the School of Public Health's Accelerated BS/MPH Program (https://sph.umd.edu/academics/dual-degrees/bsmph-accelerated-program/).

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

The School of Public Health also provides some scholarships for undergraduate students in need, including the Jerry P. Wrenn Endowed Scholarship, the School of Public Health Student Emergency Scholarship, the SPH Scholarship Fund, and TerpStart Scholarships. To learn more about School of Public Health scholarships, go to: http://sph.umd.edu/admissions/tuition-and-aid/undergraduate-tuition-and-aid/.

Students planning global learning experiences are encouraged to seek additional funding. See examples shared by UMD Global (https://marylandglobal.umd.edu/global-learning-all/fellowships-scholarships/).

# Global Health Major

**School of Public Health**
Suite 2234
Phone: 301-405-3530
gbhl@umd.edu
http://sph.umd.edu/gbhl-ug/

The Global Health major offers rigorous scholarly and applied experiences designed to embolden future leaders to achieve the level of critical thinking, analysis, and application essential to improve worldwide social, environmental, and health outcomes. Specifically, students apply structurally competent, collaborative, multidisciplinary perspectives to the understanding, assessment, and intervention of sustainable strategies necessary to effectively address current and future global health issues within local, national, and global arenas. The Global Health major prepares students for multiple career paths from biomedical to public policy, including scientific and applied research, medicine, and allied health and social service professions in the public, private, and non-profit employment sectors throughout the state, nation, and world.

## Admission to the Major

Current UMD students who wish to change to or add the Global Health major should pre-register for an SPH major declaration workshop (https://sph.umd.edu/academics/advising-resources/undergraduate-center-academic-success-and-achievement/casa-advising/casa-declare-sph-major/). Admitted freshmen and transfer students may declare Global Health as a major before their new student orientation (https://sph.umd.edu/admissions/prospective-undergraduate-students/).

All students declaring Global Health as their major will complete the world language placement (https://arhu.umd.edu/academics/world-language-placement/) and meet with a Global Health major advisor.

## Program Learning Outcomes

1. Understand the concepts, theoretical frameworks, and analytical methodologies underlying successful and sustainable global health strategies.
2. Understand the scientific bases for infectious disease.
3. Demonstrate beginning and/or intermediate ability in a second language.
4. Demonstrate competence in the development, recognition, and utilization of big data within global health applications.
5. Understand the social and cultural complexities inherent in global collaborations.
6. Demonstrate the ability to establish respectful, trusting relationships with people, communities, and institutions around the globe.
7. Understand globalization and its social and political foundations, with particular emphasis on effects on health and healthcare among populations in distinct locations.
8. Apply a multidisciplinary perspective to the appreciation, understanding, assessment, intervention, and sustainability of strategies designed to effectively address global health issues.
9. Utilize ethical, structurally competent, collaborative approaches to understanding, researching and contributing to community-supported interventions relevant to global health challenges.

10. Critically analyze the qualitative and quantitative impacts of racism on the prevention, assessment, and treatment of illness around the world.
11. Develop macro and micro strategies to combat racism and proactively promote health equity.
12. Reflect upon what it means to be anti-racist.
13. Demonstrate clear, incisive, verbal and written communication skills within the context of specific cultures, languages, and sociopolitical systems.
14. Demonstrate proficiency in a variety of electronic and digital media.
15. Recognize and critically evaluate current theories and practices within the discipline of global health.
16. Utilize peer-reviewed literature and apply it to research as well as to formulating effective program planning and evaluation strategies.
17. Apply introductory statistical methodology and big data approaches to solve global health problems.
18. Create and implement successful, novel approaches to global health issues based upon critical evaluations of historical underpinnings and previous challenges.
19. Reflect upon and integrate required academic experiential learning into a deeper understanding of professional and personal responsibility.
20. Understand the interconnected network and the major initiatives and priorities of global health organizations at the local, national and world levels.
21. Recognize the various roles, responsibilities, and opportunities available throughout the public, private, and nonprofit sectors.
22. Implement a strategy to enhance long-term career development.

# REQUIREMENTS

In order to graduate with a Bachelor of Science degree in Global Health, students must complete 120 credits, 77-83 of which are specific to the Global Health major. Students must earn a minimum grade of C- or higher in all Global Health major-required coursework.

Additional guidance for choosing a world language and identifying experiential learning opportunities, is available on the program website at http://sph.umd.edu/gbhl-ug/.

Students will need to have math eligibility of MATH120 or higher to complete the Global Health Supporting Courses.

| Course | Title | Credits |
|---|---|---|
| **Global Health Supporting Courses (19-25 credits)** | | |
| NFSC100 | Elements of Nutrition | 3 |
| World Language (Various world languages) [1] | | 6-12 |
| GVPT200 | International Political Relations | 3 |
| or GVPT282 | The Politics of Global Development | |
| BSCI170 | Principles of Molecular & Cellular Biology | 3 |
| BSCI171 | Principles of Molecular & Cellular Biology Laboratory | 1 |
| BSCI213 | (The Public Microbe) | 3 |
| **Global Health Core Courses (40 Credits)** | | |
| SPHL100 | Foundations of Public Health | 3 |
| FMSC110 | Families and Global Health | 3 |
| MIEH321 | Environmental Determinants of Emerging Infectious Diseases | 3 |
| GBHL200 | (Introduction to Global Health) | 3 |
| EPIB301 | Epidemiology for Public Health Practice | 3 |
| EPIB315 | Biostatistics for Public Health Practice | 3 |
| ANTH210 | Introduction to Medical Anthropology and Global Health | 3 |
| ANTH310 | Method & Theory in Medical Anthropology and Global Health | 3 |
| HLSA320 | (Comparative Global Health Care Delivery Systems) | 3 |
| INST420 | (Data Applications in Global Health) | 3 |
| HLTH230 | Introduction to Health Behavior | 3 |
| GBHL210 | (Careers in Global Health: Understanding the Public, Private, and Non-Profit Sectors) | 1 |
| GBHL310 | (Introduction to Global Health Literacy) | 3 |
| GBHL497 | (The Global Health Experience (Capstone)) | 3 |
| **Global Health Experiential Learning (6 Credits)** | | |
| GBHL248 | (Global Health Global Classroom) | 3 |
| At least one of the following: | | 3 |
| GBHL358 | (Global Health Study Abroad) | |
| GBHL359 | (Global Health Field Experience) | |
| **Global Health Option Courses (12 Credits)** [2] | | **12** |
| **Total Credits** | | **77-83** |

1 At least two courses must be taken in the same language. The minimum number of credits for this requirement is 6, but most languages will require more credits (up to 12). Students may test out of this requirement. Students are encouraged to minor in a language.

2 Students select from a menu of approved 3 credit Global Health Options courses. At least 2 courses (6 credits) must be at the 300 or 400 level.

# GRADUATION PLANS

Click here (http://sph.umd.edu/content/four-year-plans/) for roadmaps for graduation plans in the School of Public Health.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Kinesiology

**Department of Kinesiology**
School of Public Health Building
Phone: 301-405-2450
http://sph.umd.edu/department/knes/

The Department of Kinesiology offers a Bachelor of Science Degree. Students gain conceptual and experiential knowledge in the anatomical, physiological, psychological, sociological, and historical perspectives on physical activity, movement, exercise and sport. Our undergraduates majoring in Kinesiology will go on to further study in health professions (such as physical therapy, occupational therapy, medicine), sport-related professions (athletic training, strength and conditioning, sport management, sport marketing, coaching), fitness-related professions (exercise leader, personal trainer) and other public health and physical

activity-related careers (physical education, recreation). Our students are prepared to pursue graduate programs in Kinesiology and related fields. We offer a vibrant departmental Honors Program to students who excel in our program and seek research experience.

A brief description of the program follows. Students should obtain a current Student Handbook for the Kinesiology degree on the web at https://sph.umd.edu/academics/departments-units/department-kinesiology (https://sph.umd.edu/academics/departments-units/department-kinesiology/). The program requires a grade of "C-" or better in all required course-work.

# PROGRAMS

## Major

- Kinesiology Major (p. 472)

## Minors

- Kinesiology: Biomechanics and Motor Control Minor (p. 473)
- Kinesiology: Exercise Physiology Minor (p. 474)
- Kinesiology: Sport, Commerce, & Culture Minor (p. 474)

# ADVISING

There are a variety of advisors available to assist you with your degree progress and future plans. Kinesiology advisors assist with registration procedures, program updates, university resources, career guidance, and related issues. Students are strongly encouraged to follow their approved academic plan for timely progress throughout the degree program. Changes in the academic plan should be discussed with an academic advisor.

Walk-in hours are available each semester and advertised through the KNES listserv. Students are encouraged to use the online advising appointment process or email an advisor at advisingknes@umd.edu.

Advising is mandatory for new students, student-athletes, and students on academic probation. However, it is highly recommended all students meet with an advisor regularly. Additionally, meeting with a pre-health or career advisor in addition to an academic advisor is strongly encouraged.

To learn more about advising for Kinesiology students visit http://sph.umd.edu/department/knes/advising/.

**Dr. Elizabeth Brown**; Instructor, Advisor & Internship Coordinator, ebrown2@umd.edu

**April Khaing**; Advisor/Orientation & Recruiting, akhaing@umd.edu

**Dr. Joanne Klossner**; Instructor, Advisor & Internship Coordinator, jklossne@umd.edu

**Dr. Polly Schurer**; Director of Undergraduate Studies, pollys@umd.edu

**Lindsey Winter**; Senior Advisor, lmrodkey@umd.edu

**Schedule an appointment online:** http://sph.umd.edu/department/knes/advising/

# OPPORTUNITIES

## Undergraduate Research Experiences

Undergraduate research experiences are strongly encouraged.

Research internships are available from 1 to 3 credits and are recommended at the junior or senior level, following the completion of most kinesiology core courses but requests can be made to participate earlier.

Additional information is available on the UMD Undergraduate Research website (http://our.umd.edu) or by contacting the director of the undergraduate programs (301-405-2480).

## Internships

Internships are strongly encouraged to assist students in connecting and applying academic and conceptual knowledge to the real world. Most students consider internships during their junior and senior years (or earlier in certain situations) following the completion of related kinesiology core and options courses.

From a practical perspective, internships are invaluable in helping students focus on career options, gain experience, establish professional contacts and, perhaps most importantly, deciding whether a particular field is truly a good fit both professionally and personally. Students can take up to 15 credits of internship credits.

Additional information is available on the department website (https://sph.umd.edu/student-opportunities/internships/) or by contacting a member of our advising team.

## Honors Program

The Department of Kinesiology Honors Program provides an opportunity for students to engage in challenging educational experiences related to the study of human movement, sport, and exercise. Students with strong intellectual interests and the ability to pursue those interests at a high level are eligible for this program. The goal of the Honors Program is to nurture these students and encourage them to pursue their interests in a range of intellectual topics. The Honors Program in the Department of Kinesiology is primarily designed for junior and senior level students to encourage them to engage in scholarly independent study and discussions.

Students interested in entering the Honors Program should visit the following website: http://sph.umd.edu/student-opportunities/student-organizations-honor-societies-and-honor-programs/.

Admission to the Honors Program is based on a multifaceted set of criteria and administered through the Departmental Honors Committee. Students interested in entering the Honors Program should submit a written request to the Chair of the Honors Program, described below in detail. Each application will be treated on an individual basis; therefore the Honors Committee may take work experience, leadership, motivation and maturity into consideration. Contact the Director for more information. The applicant must meet the following minimum requirements and is expected to participate in the Honors Program for a minimum of 3 semesters:

1. An overall GPA of 3.50 on a minimum of 45 credits. (Exception: Students who are close to achieving a 3.50 GPA may submit additional materials to the Honors Committee for consideration.)

2. Have a 3.50 GPA in courses taken within the Department of Kinesiology, to include at least 9 credits from the following courses: KNES287, 293, 300, 350, 360, 370, 385.

# Student Societies and Professional Organizations

## Kinesiology Student Organization (KSO)

The mission of this Kinesiology Student Organization is to increase networking within the department (students, faculty, alumni), expose members to a variety of resources to help them succeed, and to enhance the overall sense of community through social events and community service. This is a student run organization that values opinions and ideas from everyone in the kinesiology community.

E-mail ksoumd@gmail.com to subscribe to the group's list-serve.

## Pre-Physical Therapy Association

The Pre-Physical Therapy Association is a student organization that is directed towards students who are seeking a career or are interested in physical therapy. This organization is designed to prepare students for entrance into a professional curriculum for physical therapy at institutions that offer professional advanced degrees. Our goal is to be an effective organization that guides its members to become competitive candidates for PT school. We prepare our members by organizing meetings regarding GREs, PT school applications, resumes, community service, different paths in the PT field, plus much more.

## The Pre-Physician Assistant Club

The purpose of the "Pre-PA Club" is to prepare students for the profession by providing students with different opportunities to explore and learn the profession, inform students of the history and the purpose of the profession, and to provide students information about the admission requirements for PA schools and on the application process. The club provides a welcoming, safe and fun environment for students to come together with an interest in becoming a physician assistant. We will do volunteer work, fundraisers, guest speaker events and more to learn and gain knowledge and access to the medical world.

## The Pre-Occupational Therapy Association

The Pre-Occupational Therapy Association is a student organization consisting of students who are seeking a career or are interested in the field of occupational therapy. This organization is designed to prepare students for entrance into Occupational Therapy school at institutions that offer professional MS and OTD degrees.

## Sport Business Society

Our goal is to expose our members to the business side of the sports we love. We take a look behind the curtain to examine the economic and business underpinnings that drive the decisions that are reported on ESPN and discussed around water coolers across the country. To get a well-rounded view of this world we bring in guests from all over the sports world to speak to our club. This includes visits from owners, reporters, coaches, talent evaluators, agents, contract negotiators, and many more. Members get much more than just a better understanding of sports. Through listening and interacting with very accomplished guests we learn how they have become successful. The lessons learned are applicable not only in the business world (sports or not) but in life as well. We also have occasional social events such as trips to sporting events or tailgates to let members socialize and connect.

## Phi Alpha Epsilon

Phi Alpha Epsilon (PAE) is a local honorary society open to undergraduate and graduate students in Kinesiology, Behavioral and Community Health, Family Science, and Public Health Science. The organization was founded in the fall of 1952 by students and faculty of the college that would recognize academic achievement and promote professional development. Members make a commitment to provide service to the college, university, and community.

# Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu or http://scholarships.umd.edu.

For information on departmental scholarships, please visit the department website: http://sph.umd.edu/academics/advising-resources/undergraduate-center-academic-success-and-achievement/casa-scholarships/.

# Kinesiology Major

**Program Director:** Polly Sebastian Schurer

The Department of Kinesiology offers a Bachelor of Science Degree. Students gain conceptual and experiential knowledge in the anatomical, physiological, psychological, sociological, and historical perspectives on physical activity, movement, exercise and sport. Our undergraduates majoring in Kinesiology will go on to further study in health professions (such as physical therapy, occupational therapy, medicine), sport-related professions (athletic training, strength and conditioning, sport management, sport marketing, coaching), fitness-related professions (exercise leader, personal trainer) and other public health and physical activity-related careers (physical education, recreation). Our students are prepared to pursue graduate programs in Kinesiology and related fields. We offer a vibrant departmental Honors Program to students who excel in our program and seek research experience.

A brief description of the program follows. Students should obtain a current Student Handbook for the Kinesiology degree on the web at https://sph.umd.edu/academics/departments-units/department-kinesiology (https://sph.umd.edu/academics/departments-units/department-kinesiology/). The program requires a grade of "C-" or better in all required course-work.

# Program Learning Outcomes

At the completion of the B.S. degree in Kinesiology, students should demonstrate the following outcomes:

1. Students will connect relevant theories and methods within kinesiology to evaluate research in the field.
2. Students will describe how backgrounds and experiences connect with physical activity across diverse populations.
3. Students will communicate the relationship between kinesiology and the goals of public health.
4. Students will apply knowledge of kinesiology to human movement, including their own physical activity.
5. Students will apply principles of kinesiology to human health and disease across the lifespan.

6. Students will understand the historical and current impact of discrimination to identify anti-racist and anti-bias practices which promote health equity and social justice in kinesiology.

## REQUIREMENTS

The Kinesiology program offers students the opportunity to study the interdisciplinary body of knowledge related to human physical activity and sport, and to pursue specific specializations so that each individual can prepare for a particular career goal within the broad discipline. To complete the Kinesiology degree a minimum of 120 credits is required, including the general education program.

| Course | Title | Credits |
|---|---|---|
| **Supporting Courses** | | |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | 4 |
| BSCI201 | Human Anatomy and Physiology I | 4 |
| BSCI202 | Human Anatomy and Physiology II | 4 |
| MATH113 | College Algebra and Trigonometry (or higher level MATH course) | 3 |
| MATH/STAT | Statistics Course | 3 |
| **Foundation Courses** | | |
| SPHL100 | Foundations of Public Health | 3 |
| KNES200 | Introduction to Kinesiology | 3 |
| **KNES Core Requirements** | | |
| KNES285 | History of Physical Culture, Sport, & Science in America | 3 |
| KNES287 | Sport and American Society | 3 |
| KNES300 | Biomechanics of Human Motion | 4 |
| KNES350 | The Psychology of Sports & Exercise | 3 |
| KNES360 | Physiology of Exercise | 4 |
| KNES370 | Motor Development | 3 |
| KNES385 | Motor Control and Learning | 4 |
| **KNES Upper Level Option Courses** | | **15** |
| Select 15 credits of KNES upper level option courses [1] | | |
| **Physical Activity Courses** [2] | | |
| KNES Activity | 4 different KNES physical activity courses | 4 |
| **Total Credits** | | **67** |

[1] See handbook or webpage. Note: all Option courses have one or more KNES Core courses as a prerequisite. Prerequisites must be completed with a grade of "C-" or better.

[2] See handbook or webpage.

## GRADUATION PLANS

Click here (http://sph.umd.edu/content/four-year-plans/) for roadmaps for graduation plans in the School of Public Health.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Kinesiology: Biomechanics and Motor Control Minor

**Program Director:** Polly Sebastian-Schurer

The Kinesiology minor in Biomechanics and Motor Control provides a depth of knowledge to enhance students' chosen major, so they excel in their careers after graduation. This minor focuses on the study of human movement and the physical and physiological principles upon which it depends and the influence of growth and development upon human and motor performance. Note: The Biomechanics and Motor Control minor is not open to declared Kinesiology majors. Minor courses are offered over summer/winter and students may need to utilize these offerings to complete the minor.

## Program Learning Outcomes

1. Students will interpret, synthesize, and critically analyze research underlying the kinesiological dimensions of physical activity and health that are specific to biomechanics and motor control.
2. Students will develop principled reasoning skills necessary to apply and extend kinesiology knowledge to address problems that are relevant to physical activity and the health of diverse populations in relation to biomechanics and motor control.
3. Students will integrate, interrogate, and communicate the connection between the scholarship of kinesiology and the goals of public health in relation to biomechanics and motor control.
4. Students will engage in physical activities both within their formal curriculum with the goal of asserting the importance of lifelong physical activity.
5. Students will integrate their physical activity experiences with kinesiology sub-disciplinary knowledge of biomechanics and motor control.

## REQUIREMENTS

Students are required to have BSCI170 and BSCI201 or PHYS121 (or equivalents) completed.

| Course | Title | Credits |
|---|---|---|
| KNES1XX | (Physical Activity Course) | 1-2 |
| Choose five of the following: | | 15 |
| KNES226 | The Cybernetic Human | |
| KNES265 | Mathematical, Physical, & Statistical Basis of Kinesiology | |
| KNES300 | Biomechanics of Human Motion | |
| KNES306 | Prosthetics for Limb Amputations | |
| KNES350 | The Psychology of Sports & Exercise | |
| KNES370 | Motor Development | |
| KNES385 | Motor Control and Learning | |
| KNES402 | Biomechanics of Sport | |
| KNES462 | Neural Basis of Human Movement | |
| KNES474 | Quantitative Methods in Cognitive Motor Behavior - MATLAB | |
| KNES498 | Special Topics in Kinesiology (KNES498V Clinical Biomechanics: Musculoskeletal Injury) | |
| **Total Credits** | | **16-17** |

# Kinesiology: Exercise Physiology Minor

**Program Director:** Polly Sebastian-Schurer

The Kinesiology minor in Exercise Physiology provides a depth of knowledge to enhance students' chosen major, so they excel in their careers after graduation. The minor offers access to knowledge in a broad range of areas, including whole-body and molecular aspects of cardiovascular physiology, metabolism, aging, health, and disease. Note: The Exercise Physiology minor is not open to declared Kinesiology majors. Minor courses are offered over summer/winter and students may need to utilize these offerings to complete the minor.

## Program Learning Outcomes

1. Students will interpret, synthesize, and critically analyze research underlying the kinesiological dimensions of physical activity and health that are specific to exercise physiology.
2. Students will develop principled reasoning skills necessary to apply and extend kinesiology knowledge to address problems that are relevant to physical activity and the health of diverse populations in relation to exercise physiology.
3. Students will integrate, interrogate, and communicate the connection between the scholarship of kinesiology and the goals of public health in relation to exercise physiology.
4. Students will engage in physical activities both within their formal curriculum with the goal of asserting the importance of lifelong physical activity.
5. Students will integrate their physical activity experiences with kinesiology sub-disciplinary knowledge of exercise physiology.

## REQUIREMENTS

At least nine credits must be at the 300 or 400 level. Please note that many of the upper-level courses have prerequisites. Students should have completed MATH113 or higher, or have a minimum eligibility for MATH120, in order to take any necessary prerequisite courses for this minor.

| Course | Title | Credits |
|---|---|---|
| KNES1XX | (Physical Activity Course) | 1-2 |
| Choose five of the following: | | 15 |
| KNES260 | Science of Physical Activity and Cardiovascular Health | |
| KNES282 | Basic Care and Prevention of Athletic Injuries | |
| KNES289 | Topical Investigations (KNES289F Foundations of Food, Physical Activity, & Health) | |
| KNES320 | Physiological Basis of Physical Activity and Human Health | |
| KNES332 | Exercise Testing & Prescription for Fitness Professionals | |
| KNES350 | The Psychology of Sports & Exercise | |
| KNES360 | Physiology of Exercise | |
| KNES445 | Exercise and Brain Health | |
| KNES460 | Physiology of Aging and the Impact of Physical Activity | |
| KNES464 | Exercise Metabolism: Role in Health and Disease | |
| KNES465 | Physical Activity and Disease Prevention and Treatment | |
| **Total Credits** | | **16-17** |

# Kinesiology: Sport, Commerce, & Culture Minor

**Program Director:** Polly Sebastian-Schurer

The Kinesiology minor in Sport, Commerce, & Culture provides a depth of knowledge to enhance students' chosen major, so they excel in their careers after graduation. The minor provides students with an opportunity to study the structure and experience of contemporary sport culture from an interdisciplinary perspective, informed by research, theories, and methods drawn largely–but not exclusively–from anthropology, cultural studies, economics, gender studies, history, race and ethnic studies, urban studies, and sociology. Note: The Sport, Commerce, & Culture minor is not open to declared Kinesiology majors. Minor courses are offered over summer/winter and students may need to utilize these offerings to complete the minor.

## Program Learning Outcomes

1. Students will interpret, synthesize, and critically analyze research underlying the kinesiological dimensions of physical activity and health that are specific to Sport, Commerce, Culture.
2. Students will develop principled reasoning skills necessary to apply and extend kinesiology knowledge to address problems that are relevant to physical activity and the health of diverse populations in relation to Sport, Commerce, Culture.
3. Students will integrate, interrogate, and communicate the connection between the scholarship of kinesiology and the goals of public health in relation to Sport, Commerce, Culture.
4. Students will engage in physical activities both within their formal curriculum with the goal of asserting the importance of lifelong physical activity.
5. Students will integrate their physical activity experiences with kinesiology sub-disciplinary knowledge of Sport, Commerce, Culture.

## REQUIREMENTS

At least nine credits must be at the 300 or 400 level.

| Course | Title | Credits |
|---|---|---|
| KNES1XX | (Physical Activity Course) | 1-2 |
| KNES287 | Sport and American Society | 3 |
| Choose four of the following: | | 12 |
| KNES225 | Hoop Dreams: Black Masculinity and Sport | |
| KNES285 | History of Physical Culture, Sport, & Science in America | |
| KNES289 | Topical Investigations (KNES289B Baseball: The National Pastime(?)) | |
| KNES342 | Sport, Commerce, and Culture in the Global Marketplace | |
| KNES346 | Sport for Development | |
| KNES347 | Sport Economics | |
| KNES484 | Sporting Hollywood | |

| | | |
|---|---|---|
| KNES485 | Sport and Globalization | |
| **Total Credits** | | **16-17** |

# Public Health Science

The Public Health Science Bachelor of Science degree is an interdisciplinary program designed to provide students with the educational foundation required to effectively address local, national and global issues within the public health arena. As a collaborative degree involving multiple scholarly disciplines, courses offered by this program may be found under the following acronyms: PHSC, SPHL, HLTH, KNES, EPIB, MIEH and HLSA.

The degree effectively prepares students to pursue exciting careers in allied health, medical, and public health fields as well as post-baccalaureate professional and academic degrees.

The degree is offered at both the College Park (p. 475) and Shady Grove (p. 505) campuses.

## Public Health Science Mission Statement

PHSC uses an inclusive, student-centered approach and an interdisciplinary curriculum that is rooted in both science and public health to prepare and empower the next generation of public health professionals who are equipped to use scientific inquiry to anticipate and respond to the ever-changing demands of the public health field.

## Program Objectives

The Public Health Science Bachelor of Science degree is an interdisciplinary program designed to provide students with the educational foundation required to effectively address local, national and global issues within the public health arena.

## Program Learning Outcomes

1. **Discuss** the history and philosophy of public health as well as its core values, concepts, and functions across the globe and in society.
2. **Use** basic public health concepts, methods, and tools for data collection and analysis.
3. **Identify** the major health-related needs and concerns of populations and **formulate** basic processes, approaches, and interventions as possible solutions.
4. **Describe** the underlying science of human health and disease including opportunities for promoting and protecting health across the lifespan.
5. **Examine** the socio-economic, behavioral, biological, environmental and other factors that impact human health and contribute to health disparities.
6. **Demonstrate** the fundamental concepts and features of project implementation, including planning, assessment, and evaluation.
7. **Compare and contrast** the fundamental characteristics and organizational structures of the health systems of the United States and other countries.
8. **Characterize** the basic concepts of legal, ethical, economic, and regulatory dimensions of health care and public policy.
9. **Illustrate** the basic concepts of public health specific writing and communication.
10. **Interpret and synthesize** scientific knowledge to **propose** evidence-based approaches and solutions to public health problems.
11. **Critically analyze** the impact racism has on public health and **reflect** on what it means to be anti-racist.

# PROGRAMS

## Major

- Public Health Science: College Park (p. 475)
- Public Health Science: Shady Grove (p. 505)

# ADVISING

Academic advising is strongly encouraged. To see specific advising requirements and resources for each campus location, please view our student resources (https://sph.umd.edu/academics/departments-units/public-health-science/student-resources-public-health-science/).

# OPPORTUNITIES

## Student Opportunities

Public Health Science majors are encouraged to participate in opportunities within the major, including research, internships, and study abroad. For more information on research opportunities for Public Health Science majors, please see the Research Credit: Public Health Science webpage (http://go.umd.edu/phscresearch/). For more information on internship opportunities for Public Health Science majors, please see the Internship Credit: Public Health Science webpage (http://go.umd.edu/phscintern/). For more information on study abroad opportunities for Public Health Science majors, please see the Study Abroad: Public Health Science webpage (https://go.umd.edu/PHSCabroad/).

Public Health Science majors are also invited to participate in a wide variety of student opportunities across the School of Public Health.

## Financial Assistance, Scholarships, & Awards

The Public Health Science program, School of Public Health, and the University of Maryland offer opportunities for financial assistance, scholarships, and awards based on merit and need.

For a listing of awards and scholarships, please see the Awards and Scholarships: Public Health Science webpage (https://go.umd.edu/PHSCawards/).

# Public Health Science Major

**School of Public Health**
Room 2367
Phone: 301- 405-5436
phsc@umd.edu
http://sph.umd.edu/degrees/bachelor-science-public-health-science-college-park/

**Director:** Kristin Cipriani

The Public Health Science program includes a strong curriculum in science and public health courses, such as biostatistics, epidemiology, environmental health, and health policy. Students will have the opportunity for individual exploration in public health through electives, laboratory experiences, optional internships, and a culminating interdisciplinary capstone course. As a collaborative degree involving multiple scholarly disciplines, courses offered by this program may be

found under the following acronyms: PHSC, SPHL, HLTH, KNES, EPIB, MIEH and HLSA.

The degree effectively prepares students to pursue exciting careers in allied health, medical, and public health fields as well as post-baccalaureate professional and academic degrees.

The degree is offered at both the College Park and Shady Grove campuses.

# Program Objectives

The Public Health Science Bachelor of Science degree is an interdisciplinary program designed to provide students with the educational foundation required to effectively address local, national and global issues within the public health arena.

# Program Learning Outcomes

1. Discuss the history and philosophy of public health as well as its core values, concepts, and functions across the globe and in society.
2. Use basic public health concepts, methods, and tools for data collection and analysis.
3. Identify the major health-related needs and concerns of populations and formulate basic processes, approaches, and interventions as possible solutions.
4. Describe the underlying science of human health and disease including opportunities for promoting and protecting health across the lifespan.
5. Examine the socio-economic, behavioral, biological, environmental and other factors that impact human health and contribute to health disparities.
6. Demonstrate the fundamental concepts and features of project implementation, including planning, assessment, and evaluation.
7. Compare and contrast the fundamental characteristics and organizational structures of the health systems of the United States and other countries.
8. Characterize the basic concepts of legal, ethical, economic, and regulatory dimensions of health care and public policy.
9. Illustrate the basic concepts of public health specific writing and communication.
10. Interpret and synthesize scientific knowledge to propose evidence-based approaches and solutions to public health problems.
11. Critically analyze the impact racism has on public health and reflect on what it means to be anti-racist.

# REQUIREMENTS

To view the coursework described below, please visit our PHSC curriculum page (https://sph.umd.edu/academics/departments-units/public-health-science/student-resources-public-health-science/curriculum-public-health-science-college-park/).

In order to graduate with a Bachelor of Science degree in Public Health Science, students must complete 120 credits, 74 of which are specific to the Public Health Science degree. Students must earn a minimum grade of C- or higher in all Public Health Science major-required coursework.

| Course | Title | Credits |
|---|---|---|
| **Scientific Foundation Courses** | | |
| MATH120 | Elementary Calculus I | 3 |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | 4 |
| BSCI201 | Human Anatomy and Physiology I | 4 |
| BSCI202 | Human Anatomy and Physiology II | 4 |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | 4 |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | 4 |
| BSCI222 | Principles of Genetics | 4 |
| BSCI223 | General Microbiology | 4 |
| **Public Health Science Foundation Courses** | | |
| SPHL100 | Foundations of Public Health | 3 |
| HLTH366 | Behavioral and Community Issues in Public Health | 3 |
| EPIB301 | Epidemiology for Public Health Practice | 3 |
| EPIB315 | Biostatistics for Public Health Practice | 3 |
| HLSA300 | Introduction to Health Policy and Services | 3 |
| MIEH300 | A Public Health Perspective: Introduction to Environmental Health | 3 |
| PHSC450 | Addressing Social and Structural Inequities Through Public Health | 3 |
| KNES320 | Physiological Basis of Physical Activity and Human Health | 4 |
| PHSC415 | Essentials of Public Health Biology: The Cell, The Individual, and Disease | 3 |
| PHSC497 | Public Health Science Capstone | 3 |
| **Public Health Science Options Courses** [1] | | **12** |
| **Total Credits** | | **74** |

[1] The Public Health Science option courses build upon the Scientific and Public Health Science Foundation courses. The option courses are 300 and 400 level courses primarily offered within the School of Public Health. By choosing from these courses, students have an opportunity to customize their program. Students are encouraged to choose courses that best align with a particular career goal. Please visit the PHSC website for the current list of approved options. https://sph.umd.edu/department/phs/college-park-curriculum-post-spring-2018 (https://sph.umd.edu/department/phs/college-park-curriculum-post-spring-2018/)

# GRADUATION PLANS

Click here (http://sph.umd.edu/content/four-year-plans/) for roadmaps for graduation plans in the School of Public Health.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# School of Public Policy

1200 Thurgood Marshall Hall
Phone: 301-405-6330
http://spp.umd.edu

**Dean:** Robert Orr, Ph.D.
**Associate Dean for Academic and Student Affairs:** Nina P. Harris, Ph.D.

The school currently offers a Bachelor of Arts in Public Policy, as well as minors in Nonprofit Leadership and Social Innovation, Sustainability Studies, Science, Technology, Ethics and Policy (STEP) and Public Leadership. Courses may be found under PLCY. These courses are suggested for students wishing to develop knowledge and experience in public policy and leadership. The school also offers a 5-year bachelor's/master of public policy program for selected students. For additional information on the wide range of undergraduate opportunities see http://spp.umd.edu/your-education/undergraduate/.

## Admission to the Major

First-time freshmen students who wish to major in Public Policy at the University of Maryland are encouraged to apply for admission to the university by the early action deadline of November 1. There is no separate application for our major and seats in the major are guaranteed as we are NOT a limited enrollment program.

Current University of Maryland students who wish to add the Public Policy major should contact our advisors at plcyundergrad@umd.edu for more information. Our major is not limited enrollment so all students are welcome assuming you have time to complete all the major requirements.

# ACADEMIC PROGRAMS

## Major

- Public Policy Major (p. 479)

## Minors

- Nonprofit Leadership and Social Innovation Minor (p. 478)
- Public Leadership Minor (p. 478)
- Science, Technology, Ethics and Policy Minor (PLCY) (p. 480)
- Sustainability Studies Minor (PLCY) (p. 480)

# ADVISING

The Public Policy major has mandatory advising every semester. Academic advising is an ongoing process that helps students clarify their educational and career goals, and then chart a meaningful plan for achieving those goals. Advising is the joint responsibility of the student and the advisor. The advisor assists students in evaluating their degree progress and helps them select appropriate courses and other educational experiences tailored to their personal goals. Ultimately, students are responsible for making decisions, setting and meeting identified goals and published requirements. More information for students can be found here (https://spp.umd.edu/info/students/undergraduate/). Students can contact the Public Policy advising office by calling 301-405-6330 or emailing plcyundergrad@umd.edu.

# OPPORTUNITIES

## Living-Learning Programs

### Public Leadership Program in College Park Scholars

A living-learning program of the University's College Park Scholars (https://scholars.umd.edu), Public Leadership explores the theory and practice of leadership, empowering students to become social change agents through hands-on public service projects and examination of pressing social, political and economic issues. Join a community of students from across the university who are committed to developing their leadership skills for the common good.

Learn more about Public Leadership (https://scholars.umd.edu/programs/pl/)

### iGive: Carillon Community

A living-learning program in the University's Carillon Communities (https://carillon.umd.edu), iGive explores a big question that matters to our world - how can you use philanthropy, innovation and social change for good? Spend your freshman year with a group of like-minded students as you identify a social cause you share a passion for and then develop and practice leadership skills as you support a local nonprofit organization.

Learn more about iGive (https://carillon.umd.edu/communities/igive/)

## Specialized Academic Programs

### Rawlings Undergraduate Leadership Fellows Program

Honoring the legacy of Howard Peters "Pete" Rawlings and his decades of public service in the Maryland House of Delegates, the Rawlings Program provides students the opportunity to champion causes they are passionate about and advocate for those in the community that are underserved and marginalized. Combining mentorship, engagement with expert faculty and public leaders, and hands-on experiences working in the community, the Rawlings Program realizes students' commitment to ethical leadership and public service.

Learn more about the Rawlings Program (https://spp.umd.edu/your-education/undergraduate/co-curricular-programs/rawlings-undergraduate-leadership-fellows/)

## Financial Assistance

### Scholarships in the School of Public Policy

Opportunities for scholarship provide not just funding for your education, but the chance to be part of a legacy. The School of Public Policy's prestigious scholarship awards, generously endowed by members of our community committed to helping finance education, are awarded to undergraduate students each year. The School of Public Policy offers funding for both admitted prospective students as well as current students. To learn more and apply for scholarships, please review the details found here (https://spp.umd.edu/admissions/financial-aid-scholarships/).

### UMD Financial Aid

The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For more information, visit: http://financialaid.umd.edu.

# Nonprofit Leadership and Social Innovation Minor

**School of Public Policy**
1100 Thurgood Marshall Hall
nplminor@umd.edu
http://spp.umd.edu/your-education/undergraduate/minors/

**Program Director:** Ebonie Johnson Cooper

Built with hands-on learning, the Minor in Nonprofit Leadership and Social Innovation heightens students' awareness of local, national and global issues and examines different approaches to social impact. Students study the role of the nonprofit, NGO, and social sector, as well as social innovation, leadership, and the skills required for effective nonprofit management. This minor is open to all undergrads on campus, regardless of major. Students who want to take a deeper dive, can pursue the Major in Public Policy (https://spp.umd.edu/your-education/undergraduate/public-policy-major/) with a focus on Nonprofit Leadership and Social Innovation.

## REQUIREMENTS

Complete the application form (https://spp.umd.edu/sites/default/files/2019-06/Nonprofit_Leadership_and_SI_Minor_Application.pdf) (electronically or handwritten) and email it to nplminor@umd.edu. More information about this minor can be found at http://spp.umd.edu/your-education/undergraduate/minors/.

Students must complete at least 15 credits, including three required courses and two electives. Other electives are being added to this list and students may also propose other courses to meet the elective requirements. No course may be used to satisfy the requirements of more than one minor and at least nine credits must be at the 300-400 level. All courses must be passed with a grade of C- or better.

| Course | Title | Credits |
|---|---|---|
| **Required Courses: (3 classes, 9 credits)** | | |
| PLCY213 | Foundations of Nonprofit Leadership and Social Innovation | 3 |
| PLCY310 | Nonprofit Leadership and Social Innovation in Action | 3 |
| Add one of the following | | 3 |
| PLCY215 | Innovation and Social Change: Creating Change for Good | |
| PLCY380 | Innovation and Social Change: Do Good Now | |
| BSOS388 | Behavioral and Social Sciences Special Topics (BSOS388B Innovation and Social Change: Do Good Now) | |
| HONR348 | (HONR348D Innovation and Social Change: Do Good Now) | |
| ARHU380 | Arts & Humanities in Social Innovation, Change, and Justice: Do Good Now | |
| ENME467 | Engineering for Social Change | |
| **Electives (2 classes, 6 credits)** | | **6** |
| One of the following courses is allowed and encouraged as an elective (students may not count more than one of the courses below toward the minor requirements): | | |
| PLCY214 | Leading and Investing in Social Change: Re-defining and Experimenting with Philanthropy | |
| PLCY359 | Contemporary Issues in Political Leadership and Participation (PLCY359I Re-defining and Experimenting with Philanthropy) | |
| PLCY388 | Special Topics in Public Policy (PLCY388G Global Perspectives on Leading and Investing in Social Change) | |
| HONR349 | Honors Colloquium (Re-defining and Experimenting with Philanthropy) | |
| **Other Electives:** | | |
| For a comprehensive list of electives see website | | |
| **Total Credits** | | **15** |

Three credits of study abroad or three credits of an internship or experiential learning related to nonprofits and social innovation and approved by the director will be accepted as an elective.

# Public Leadership Minor

**School of Public Policy**
1100 Thurgood Marshall Hall
plminor@umd.edu
http://spp.umd.edu/your-education/undergraduate/minors/

**Program Director:** Susannah Washburn

Explore the complex issues that face leaders around the world by minoring in Public Leadership. You will be empowered to think critically about the solutions needed for a range of pressing problems, examining such issues as democratization and human rights, crime and punishment, diversity and affirmative action, and poverty and inequality. In addition to exploring the issues, you will engage in critical questions and learning about leadership for the public good and effective citizenship.

The Public Leadership minor will allow students to examine today's most pressing issues. Matters facing our world leaders such as, the global environment, human rights, the criminal justice system, equity in education, diversity, poverty, and inequality will be analyzed on multiple levels. Students will face these same challenges in their courses while learning to critically assess and recommend viable solutions through effective leadership for the public good.

## Program Learning Outcomes

1. To develop students' knowledge of leadership theories;
2. To offer undergraduate students a coherent and integrated public leadership curriculum;
3. To give undergraduate students an education providing knowledge and skills appropriate to the understanding and exercise of appropriate leadership in their chosen professions, organizations, and communities;
4. To create and support a community of young public leaders who hold a common interest in leadership studies;
5. To offer students who are interested in public service a place to begin to build an intellectual foundation which will allow them to address the problems of the next decade;
6. To prepare our students for the responsibilities of leadership and citizenship in a complex world; and

7. To gain experience in applying leadership theories and concepts in a structured internship experience.

# REQUIREMENTS

**Requirements:** 15 approved credits, at least 9 of which are 300- or 400-level. All courses taken for a minor must be completed with a minimum grade of C-. A minimum C (2.00) cumulative grade point average across all courses used to satisfy the minor is also required. Notes: No more than 6 credits may overlap between your major and the Public Leadership Minor, unless otherwise approved by your major. Additionally, courses completed in one minor may not be used to satisfy the requirements in another minor.

| Course | Title | Credits |
|---|---|---|
| **Core Course** | | |
| Select one of the following: | | 3 |
| PLCY201 | Public Leaders and Active Citizens | |
| PLCY302 | Examining Pluralism in Public Policy | |
| **Signature and Elective Courses** | | |
| Select 12 credits from approved list [1] | | 12 |
| **Total Credits** | | **15** |

[1] The remaining 12 credits will be selected by the student from a list of approved signature courses and electives. A credit-bearing experiential learning option for which a grade is earned, e.g., internship, study abroad, research project, etc. can count as part of the remaining 12 credits. The experiential learning option must be linked to public leadership and approved in advance.

**For more information, visit** here (https://spp.umd.edu/your-education/undergraduate/minors/) **or e-mail plminor@umd.edu.**

# Public Policy Major

**School of Public Policy**
1100 Thurgood Marshall Hall
Phone: 301-405-6330
plcyundergrad@umd.edu
http://spp.umd.edu/your-education/undergraduate/public-policy-major/

**Program Director:** Jennifer Littlefield, Ph.D.

With no shortage of complex challenges, the world needs leaders who are able to understand and communicate the issues, who can design and implement bold solutions and who can ethically and compassionately lead the movements and organizations that create real change. As a PolicyTerp, students will:

- Learn how to analyze the issues to create and critically evaluate responses that promote better outcomes for communities.
- Cross disciplinary boundaries to better understand the complexities of the challenges the world faces and immerse yourself in multiple perspectives.
- Develop decision-making and leadership skills to translate theory and analysis into on-the-ground action.

The interdisciplinary Public Policy major focuses on using analytical decision-making to study an array of subjects ranging from the processes of making, implementing and evaluating government policies to the ethical evaluation of contemporary social problems, both domestic and international. The major has two distinctive components:

1. core foundational skills critical for the understanding and analysis of problems and proposed solutions; and
2. the application of these skills and competencies to address challenges in the real world by engaging with the policy process at local, state and national levels through real-time projects.

The major in Public Policy at the University of Maryland equips students with competence in leadership and analytical skills, supported by theory and data, to prepare them for careers in public service, policymaking, and the public, private, and nonprofit sectors.

Courses offered by this department may be found under the following acronym: PLCY.

## Program Learning Outcomes

Students completing a Public Policy major will:

1. Understand public policy problems, concepts, processes, institutions and actors through a multidisciplinary lens, with perspectives from the local to the global.
2. Analyze public issues from a range of ideological, demographic, and socioeconomic perspectives, including those that are underrepresented in the public policy process.
3. Apply quantitative and qualitative tools to real-world policy issues.
4. Communicate complex ideas and findings in written and oral forms.
5. Demonstrate teamwork, ethical decision-making, management and leadership skills. \

# REQUIREMENTS

*C- or better is required in all major courses and the cumulative average of these courses must be a 2.0.*

| Course | Title | Credits |
|---|---|---|
| **Benchmark Requirement One** [1] | | |
| PLCY100 | Foundations of Public Policy | 3 |
| HIST201 | Interpreting American History: From 1865 to the Present | 3 |
| **Benchmark Requirement Two** [2] | | |
| PLCY101 | Great Thinkers on Public Policy | 3 |
| STAT100 | Elementary Statistics and Probability | 3 |
| (STAT100 equivalent accepted) | | |
| **Required Major Courses** | | |
| ECON200 | Principles of Microeconomics | 3 |
| PLCY201 | Public Leaders and Active Citizens | 3 |
| PLCY203 | Liberty and Justice for All: Ethics and Moral Issues in Public Policy | 3 |
| PLCY300 | Governance: Collective Action in the Public Interest | 3 |
| PLCY302 | Examining Pluralism in Public Policy (UP Pending) | 3 |
| PLCY303 | Public Economics Raising and Spending the People's Money | 3 |
| PLCY304 | Evaluating Evidence: Finding Truth in Numbers | 4 |
| PLCY306 | Public Policy Analysis in Action [3] | 3 |
| PLCY309 | Internship in Political Institutions: State and Local | 3-6 |
| PLCY400 | Senior Capstone [4] | 3 |

| | | |
|---|---|---|
| PLCY401 | Contemporary Issues in Public Policy [4] | 3 |
| Introduction to Public Policy Focus or General Policy elective | | 3 |
| Students may choose an area of focus or choose general policy related electives | | |
| Focus/PLCY Elective Course 2 | | 3 |
| Focus/PLCY Elective Course 3 | | 3 |
| Focus/PLCY Elective Course 4 | | 3 |
| **Total Credits** | | **58-61** |

[1] Must be completed by the end of **two semesters** into the major
[2] Must be completed by the end of **four semesters** into the major
[3] Taken after 60 credits
[4] Taken after 90 credits

## GRADUATION PLANS

Click here (https://spp.umd.edu/spp_4-year_plan/) for roadmaps for graduation plans in the School of Public Policy.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Science, Technology, Ethics and Policy Minor (PLCY)

stepminor@umd.edu
http://spp.umd.edu/your-education/undergraduate/minors/science-technology-ethics-and-policy-step-minor/

**Program Director:** David Tomblin, Ph.D.

The minor in Science, Technology, Ethics and Policy (STEP) explores the powerful social, ethical, and political relationships that drive research and innovation. The program delves into the challenges of living and innovating in a world where emerging science and technologies are becoming increasingly interconnected, pervasive, and powerful. The STEP minor offers students the knowledge and analytical skills to understand and assess the complex interactions among science, technology, policy and ethics, providing students the opportunity to explore the ways that scientific practice and technological development are embedded in social, cultural, humanistic, and political systems.

STEP welcomes students from all majors who are interested in understanding how we can responsibly maximize the societal benefits of scientific inquiry and technological innovation. The program's primary goal is to give students analytical skills that help connect science and technology to broader social needs. Coursework emphasizes the importance of interdisciplinary modes of inquiry to generate new scientific knowledge and technologies, and to understanding the ethical considerations and social benefits that flow from them.

Electives are grouped in three concentrations, each linked to a learning outcome. Students can go deep in one concentration or choose across groupings. The end product of the program is a capstone research project of the student's own choosing, which is developed under faculty mentorship. At the onset of the capstone course, students will complete an assignment that allows them to articulate how their elective courses have shaped their understanding of science, technology, ethics and policy and how it informs their choice of capstone project.

## Minor concentration areas:

**Social, ethical and policy implications**: This concentration explores the contemporary societal implications of science and technology. These courses ask students to think about the role science and technology have played in creating local and global social and environmental crises and what science and technology can do to help solve them.

**Science and technology development**: This concentration focuses on cultural, legal, organizational, and institutional forces that have shaped science and technology. It asks students to think about what causes knowledge production and technical practices to change over time and how these changes can improve implementation going forward.

**Information economy**: This concentration focuses on how the information economy has shaped scientific and technological practices. Students are asked to think about society's evolving relationships with information as a driving force in the private and public sector.

## Student Learning Outcomes

1. Articulate and explore the social, ethical, and policy implications of how scientific ideas emerge and technologies are designed, developed, and used (Social, ethical and policy implications concentration)
2. Identify political and legal contexts governing science and technology (Social, ethical and policy implications concentration)
3. Recognize lessons from the historical contingency and legacy of scientific knowledge and technological development (Science and technology development concentration)
4. Synthesize broad implications of the "information economy" for science, technology, and society (Information economy concentration)
5. Interpret the rules, customs, and cultural practices that are the foundation for scientific and technological institutions. (Science and technology development concentration)

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Required Courses (2 classes)** | | **6** |
| ENES240 | Ethical, Policy and Social Implications of Science and Technology | 3 |
| ENES440 | Science, Technology, Ethics, and Policy: Minor Program Capstone | 3 |
| **Electives (3 classes)** | | **9** |
| For a comprehensive list of electives see website. [1] | | |
| **Total Credits** | | **15** |

[1] Six credits must be at the 300-400 level.

http://spp.umd.edu/your-education/undergraduate/minors/science-technology-ethics-and-policy-step-minor/

# Sustainability Studies Minor (PLCY)

**Co-sponsored by the College of Agriculture and Natural Resources and the School of Public Policy**
1100 Thurgood Marshall Hall

susminor@umd.edu
http://spp.umd.edu/your-education/undergraduate/minors/#sus/

**Program Directors:** Joanna Goger, J.D. and Thomas C. Hilde, Ph.D.

The study of sustainability examines each generation's commitment to protect and preserve the quality of the natural environment for the benefit of succeeding generations. The stability of natural systems and the environment, economic progress, and promoting social justice are all important sustainability goals. Promoting these goals involves choices among competing ends.

The Sustainability Studies Minor at the University of Maryland provides students the opportunity to learn how human relationships, natural resources, and diverse environments can be understood and used to address creatively and positively the global challenges that will affect future human populations and cultures. It will complement any major on campus and provide both intellectual breadth and depth in a challenging area of inquiry that is gaining a high level of interest in businesses, government agencies, and non-governmental organizations. This minor will provide students with the critical thinking and problem-solving skills necessary for them as citizens, employees, or graduate students.

To apply please: 1) complete the application form (electronically) and email it to susminor@umd.edu and 2) schedule a mandatory advising appointment during advising hours. For more information, please visit our page at http://spp.umd.edu/your-education/undergraduate/minors/#sus/ or email susminor@umd.edu.

# REQUIREMENTS

15 approved credits, at least 9 of which are 300- or 400-level. All courses taken for a minor must be completed with a minimum grade of "C-". A minimum C (2.00) cumulative grade point average across all courses used to satisfy the minor is also required. Notes: No more than 6 credits may overlap between your major and Sustainability Studies, unless otherwise approved by your major. Additionally, courses completed in one minor may not be used to satisfy the requirements in another minor. Students must declare the minor a full academic year before their intended graduation.

| Course | Title | Credits |
|---|---|---|
| AGNR/PLCY301 | Sustainability [1] | 3 |
| Select one course from each of the following groups: [2] | | 9 |
| Science and Technology | | |
| Policy and Institutions | | |
| Social and Human Dimensions | | |
| Select an additional approved course from one of these categories or an approved, credit-bearing experiential learning option for which a grade is earned [3] | | 3 |
| **Total Credits** | | **15** |

[1] This course will introduce you to the normative concepts and new thinking surrounding sustainability. We will use readings, lectures, writing exercises, and small group exercises that address how environmental responsibility, economic health, social equity, and cultural vitality are defined and considered in the sustainability context. The roles of resilience and adaptive management will be examined as key pragmatic dimensions of sustainability and as challenging concepts shaping our environmental ethics today. Guest speakers from the Washington region with research and policy expertise will discuss current policy issues.

[2] See web site for a list of approved courses

[3] These experiences include internships, study abroad trips, and research projects. The experiential learning option must be linked to sustainability and approved in advance.

# The Universities at Shady Grove

Camille Kendall Academic Center Building III
9636 Gudelsky Drive
Rockville, MD 20850
Phone: 301-738-6000
shadygrove@umd.edu
http://shadygrove.umd.edu

**USG Executive Director and Associate Vice Chancellor for Academic Affairs, USM:** Anne Khademian, Ph.D.

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The Universities at Shady Grove (USG) is part of the University System of Maryland and a partner campus of nine Maryland universities that collaborate to offer their top degree programs, as well as certificate and continuing education programs, at one convenient location in Montgomery County. USG currently serves nearly 4,000 graduate and undergraduate students.

With coursework beginning at the junior level, USG provides all the prestige and benefits of a Maryland education during a student's final two years of undergraduate study. Most credit earned at Maryland community colleges will transfer, and students can choose from a variety of majors, with classes offered at times that meet their schedules. At the Universities at Shady Grove campus, students work closely with professors from nationally ranked academic programs. Everything you need to be successful as a student can be found on USG's campus, including advising, financial aid assistance, career and internship opportunities, academic support, a library, fitness center, and cafe. Students can also take advantage of a growing number of social events, community service activities and student leadership opportunities.

The University of Maryland, College Park is one of the powerful partners that make up USG. **Students can earn a University of Maryland, College Park degree** at USG and celebrate Terrapin traditions no matter which campus they call home.

The University of Maryland, the Universities at Shady Grove, and Montgomery College have worked together to offer the Terp Transfer Partnership, which benefits students while they are still enrolled at Montgomery College and creates a seamless pathway to one of the University of Maryland programs offered at the Universities at Shady Grove. Students with at least one semester left at Montgomery College gain early access to advising, workshops, and events related to their University of Maryland program of interest at Shady Grove through the Terp Transfer Partnership program. The Terp Transfer Partnership has also been expanded to include serving students who begin at Frederick Community College.

The University of Maryland, College Park offers eleven undergraduate degrees at Shady Grove.

- Accounting, B.S.
- Biocomputational Engineering, B.S.
- Biological Sciences, B.S.
- Communication, B.A.
- Criminology and Criminal Justice, B.A.
- Cyber-Physical Systems Engineering, B.S.
- Fermentation Science, B.S.
- Information Sciences, B.S.
- Management with Specialization in Entrepreneurship, B.S.
- Marketing, B.S.
- Public Health Science, B.S.

## ACADEMIC PROGRAMS

## Majors

- Accounting Major at Shady Grove (p. 507)
- Biocomputational Engineering Major at Shady Grove (p. 484)
- Biological Sciences Major at Shady Grove (p. 489)
- Communication Major at Shady Grove (p. 502)
- Criminology and Criminal Justice Major at Shady Grove (p. 492)
- Cyber-Physical Systems Engineering Major at Shady Grove (p. 486)
- Fermentation Science Major at Shady Grove (p. 503)
- Information Science Major at Shady Grove (p. 497)
- Management Major at Shady Grove (p. 509)
- Marketing Major at Shady Grove (p. 510)
- Mechatronics Engineering Major at Shady Grove (p. 488)
- Public Health Science Major at Shady Grove (p. 505)

## Minors

- Criminal Justice Minor at Shady Grove (p. 493)
- Information Risk Management, Ethics, and Privacy Minor at Shady Grove (p. 496)
- Technology Innovation Leadership Minor at Shady Grove (p. 501)

# A. James Clark School of Engineering at Shady Grove

**The Universities at Shady Grove**
9636 Gudelsky Drive
Rockville, MD 20850
http://eng.umd.edu

**Biocomputational Engineering**
Biomedical Sciences and Engineering Facility 4119
biocomp@umd.edu

**Cyber-Physical Systems Engineering**
Biomedical Sciences and Engineering Facility 5104
es-sg@umd.edu
Phone: 240-665-6531

**Mechatronics Engineering**
Biomedical Sciences and Engineering Facility
mechatronics@umd.edu

**Dean:** Samuel Graham, Jr., Ph.D.
**Associate Deans:** Akua Asa-Awuku, Ph.D.; Robert Briber, Ph.D; Hugh Bruck, Ph.D.; Ken Kiger, Ph.D.; Min Wu, Ph.D.

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Discipline-defying combustion experiments aboard the International Space Station. New advanced technologies that help farmers tap the economic potential and environmental benefits of shellfish aquaculture. Wood transformed into something clear, bouncy, bulletproof, and that might help save our planet.

These and other research innovations poised to benefit millions are borne from the A. James Clark School of Engineering, one of the premier engineering schools in the United States.

Maryland Engineering's mission is to be a place where students make a positive impact on the world. We believe in practicing engineering as a public service: innovating for people in communities we may never see or meet, but whose quality of life will be improved through our innovation.

Located a few miles from Washington, D.C., the Clark School is at the center of a constellation of high-tech companies and federal laboratories, offering students access to one of the most vibrant research programs in the country. With industry-leading expertise in areas that are shaping society such as quantum technology, energy, robotics, communications and networking, life cycle and reliability engineering, disaster resilience, and intelligent transportation systems, Clark School students conduct research relied upon by federal agencies, major companies, and other academic institutions alike.

We combine rigorous classroom learning with opportunities for hands-on experience, including the autonomous vehicle project in freshman year and capstone courses in junior and senior years; participation in numerous national and international engineering competitions in which the school is consistently successful; a vibrant entrepreneurial ecosystem; and extensive internship opportunities.

With one of the nation's most active chapters of Engineers Without Borders, Clark School students can apply their skills and energies in the service of others all around the world. Service options closer to home are available through the many student societies, alternative spring breaks, and targeted initiatives started by fellow students.

Society needs solutions to its grand challenges; engineers will play a part in every solution: http://eng.umd.edu.

# Admission Requirements

## Transfer Admission

### Direct Admissions Requirements

Transfer admission to the A. James Clark School of Engineering is limited for all majors except Biocomputational Engineering (located at the Shady Grove campus). Internal and external transfer students will be directly admitted to the Clark School if they meet the following Gateway requirements: MATH141 with a "B-" or higher, PHYS161 with a "B-" or higher, either CHEM135 or CHEM271 or CHEM134 with a minimum grade of "C-" or higher (Students who take CHEM134 must also have completed CHEM131 with a minimum grade of "C-"). Students must also have a minimum cumulative GPA of 3.0 in all college-level coursework, and have not previously been admitted to the Clark School of Engineering. Only one repeat of a single Gateway course, either at the University of Maryland or at any other university or college, will be considered to meet the review requirements. A course in which a grade of "W" (withdrawn) is earned is counted as an attempt. Students should wait until all gateway requirements are complete before applying for admission to the School.

## Transfer Admission Appeal Process

All students denied admission to the Clark School may appeal the decision in writing directly to the Associate Dean of Undergraduate Student Affairs in the Clark School.

## Maryland Community College Transfer Students

Students who complete an associate's at a Maryland community college may be prepared to enter into the sophomore or junior year in engineering at the University of Maryland if they have completed the required engineering coursework. To ensure that you are enrolling in the correct courses to transfer, please consult the Engineering four-year plans and the Transfer Credit Services website. There may be some courses which are not offered at Maryland community colleges. Students should investigate the feasibility of completing these courses during the summer session at the University of Maryland before starting their junior coursework in the fall semester. Students transferring in Fall 2022 and after may apply up to 70 credits from a MD community college to their degree. Any student transferring prior to Fall 2022 may apply up to one half of the degree credits (approximately 60 semester hours) to their degree.

# PROGRAMS

# Majors

- Biocomputational Engineering Major at Shady Grove (p. 484)
- Cyber-Physical Systems Engineering Major at Shady Grove (p. 486)
- Mechatronics Engineering Major at Shady Grove (p. 488)

# COLLEGE REQUIREMENTS

# Undergraduate Degree Requirements

Structure of Engineering Curricula: The section below describes the requirements and the prescribed credit hours leading to the Bachelor of Science degrees awarded in the Clark School of Engineering. The courses in each curriculum may be classified in the following categories:

1. Courses in the General Education Program;
2. Courses in Basic Sciences (mathematics, chemistry, and physics);
3. Related technical courses, engineering sciences and other courses approved for one curriculum but offered by another department;
4. Courses in the major department. The courses in each engineering curriculum, as classified below, form a sequential and developmental pattern in subject matter. In this respect, curricula in engineering may differ from curricula in other colleges. Some regulations which are generally applicable to all students may need clarification for purposes of orderly administration among engineering students (see Academic Regulations (p. 69)). Moreover, the Clark School of Engineering establishes policies that supplement university regulations.

## School Regulations

1. The responsibility for proper registration and for satisfying stated prerequisites for any course must rest with the student as does the responsibility for proper achievement in courses in which the student is enrolled. Each student should be familiar with the provisions of this catalog, including the Academic Regulations.
2. Required courses in mathematics, physics, and chemistry have highest priority. It is strongly recommended that every engineering student register for mathematics and chemistry or mathematics and physics each semester until the student has fully satisfied the requirements of the Clark School of Engineering in these subjects.
3. To be eligible for a bachelor's degree in the Clark School of Engineering, a student must have an overall cumulative grade point average of at least a 2.0 and a "C-" or better in all engineering degree

requirements (including all technical coursework but not limited to courses taken in MATH, PHYS, CHEM). Students matriculating to UMD in the fall of 2012 or after must also have a 2.0 cumulative GPA in their major courses, minor courses and classes used to satisfy certificate programs.

4. A course taken at UMD in which a grade has been earned may not be repeated via transfer from another institution.
5. Students in the Clark School of Engineering must have a minimum 2.0 University of Maryland GPA to enroll in courses at another institution.
6. All students are required to complete a number of general education courses and must follow the university's requirements regarding completion of the General Education Program. Consult the Academic Regulations section of this catalog for additional information. Engineering students are required to complete a Professional Writing course.
7. All degree programs in the Clark School of Engineering require a minimum of 120 credits plus satisfaction of all department, School, and University general education program requirements. Students should be aware that, for all currently existing engineering programs, the total number of credits necessary for the degree exceeds 120 by some number that depends on the specific major.

All undergraduate programs offered at USG begin at the junior (300) level. Students interested in attending a program at USG must complete approximately 60 credits elsewhere and then transfer. Representatives for each program offered at USG can assist students in learning about their respective prerequisites and admissions criteria.

Curricula for the various engineering departments are given in this catalog to illustrate how the programs may be completed. These curricula are rigorous and relatively difficult. It is not uncommon for a student to extend their curriculum; this may be necessary or desirable for a variety of reasons. However, students should seek academic advising in order to ensure that courses are taken in the proper sequence.

All students are encouraged to utilize the university's degree auditing system, uAchieve, and to review the audit with their departmental advisor throughout the course of their academic career. The purpose of the audit is to discuss academic progress and to confirm that graduation requirements are met.

### Departments and Degrees

The Clark School of Engineering consists of eight academic departments and offers the degree of Bachelor of Science in the following fields of study: Aerospace Engineering, Bioengineering, Biocomputational Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Cyber-Physical Systems Engineering, Electrical Engineering, Fire Protection Engineering, Materials Science and Engineering, and Mechanical Engineering. All of the above programs are accredited by the Engineering Accreditation Commission of ABET, http://abet.org (with the exception of Biocomputational Engineering and Cyber-Physical Systems Engineering).

### Freshmen-Sophomore Years

The freshmen and sophomore years in engineering are designed to lay a strong foundation in mathematics, physical sciences, and the engineering sciences upon which the student will later develop a professional program during the upper division (junior and senior) years. During the first two years, students are introduced to the concepts of engineering design and work in multidisciplinary teams.

Advising is mandatory prior to registration each semester for all students in the Clark School. Each engineering department has a representative who advises students in their respective discipline. Refer to the individual program for additional advising information.

During orientation to the university, all students will receive advising from their departmental representatives.

## ADVISING

Advising is mandatory prior to registration each semester for all students in the Clark School. Each engineering department has a representative who advises students in their respective discipline. Refer to the individual program for additional advising information.

During orientation to the university, all students will receive advising from their departmental representatives.

# Biocomputational Engineering Major at Shady Grove

**Program Director:** Ian White, Ph.D
**Assistant Program Director:** Lan Ma, Ph.D

Biocomputational engineering brings together the field of bioengineering, a discipline grounded in fundamentals of physics, chemistry, and biology, with computation and data science, which enhances the value of all fields. The objective of the biocomputational engineering program is to provide a breadth of fundamentals in biology and quantitative problem solving while developing skills in computation and data science that can be applied to the modeling of complex biological systems and the analysis of complex biological data sets in order to create new knowledge from the molecular to organ to system levels, and to develop innovative processes for the prevention, diagnosis, and treatment of disease. The synthesis of bioengineering, computation, and data science gives the graduates unique capabilities to solve existing and emerging challenges of the modern medical world.

## Admission to the Major

Prior to being admitted to the Biocomputational Engineering major, students must complete the prerequisite math/science courses, lower-level General Education requirements (or an associate's degree), and a total of 60 credits. Students are welcome to apply as transfer students from community college or four-year institutions. For more information regarding admission to the Biocomputational Engineering major, visit http://biocomp.umd.edu/admissions/.

## Program Educational Objectives

The BCE program provides students with a foundation in quantitative problem solving, engineering, and biology. In addition, the program provides students with data science skills. The students' educational outcomes position them for careers in data science, in particular in the biomedical and biotechnology fields.

Our graduates are grounded in fundamentals that will serve them throughout their professional careers. They will have an understanding of human behavior, societal needs and forces, the dynamics of human efforts, and the impact of those efforts on human health and our environment. With these underpinnings and abilities, we have defined three Program Educational Objectives we expect our graduates to attain. In 3-5 years after graduation, our graduates will:

1. Be successful in Biocomputational Engineering careers or post-graduate educational pursuits by applying scientific depth, technical skills, and knowledge gained through practical experiences.
2. Address the data-driven computational biomedical challenges facing society in both the near and long term by demonstrating an awareness of their field and an ability for lifelong learning.
3. Serve their profession, promote equity and justice through technology, and positively impact society by drawing upon a foundation of professional ethics.

## Student Learning Outcomes

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

# REQUIREMENTS

## Prior Study

Prior to being admitted to the Biocomputational Engineering major, students should have completed basic math/science/engineering courses, lower-level general education requirements (or an associate's degree from a Maryland public institution), and 60 credits.

| Course | Title | Credits |
|---|---|---|
| ENGL101 | Academic Writing | 3 |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| MATH241 | Calculus III | 4 |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | 3 |
| PHYS260 | General Physics: Electricity, Magnetism and Thermodynamics | 3 |
| PHYS261 | General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | 1 |
| ENES100 | Introduction to Engineering Design | 3 |
| CHEM135 | General Chemistry for Engineers | 3 |
| CHEM136 | General Chemistry Laboratory for Engineers | 1 |
| BSCI170 | Principles of Molecular & Cellular Biology | 3 |
| or BIOE120 | Biology for Engineers | |
| MATLAB programming course -- e.g. BIOE241 or equivalent | | 3 |
| Lower-level general education requirements or A.A./A.S. degree from a Maryland public institution | | 25 |
| **Total Credits** | | **60** |

## Required Courses

| Course | Title | Credits |
|---|---|---|
| ENBC301 | Introduction to Biocomputational Engineering | 1 |
| ENBC311 | Python for Data Analysis | 3 |
| ENBC312 | Object Oriented Programming in C++ | 3 |
| ENBC321 | Machine Learning for Data Analysis | 3 |
| ENBC322 | Algorithms | 3 |
| ENBC331 | Applied Linear Systems and Differential Equations | 3 |
| ENBC332 | Statistics, Data Analysis, and Data Visualization | 3 |
| ENBC341 | Biomolecular Engineering Thermodynamics | 3 |
| ENBC342 | Computational Fluid Dynamics and Mass Transfer | 3 |
| ENBC351 | Quantitative Molecular and Cellular Biology | 3 |
| ENBC352 | Molecular Techniques Laboratory | 2 |
| ENBC353 | Synthetic Biology | 3 |
| ENBC425 | Imaging and Image Processing | 3 |
| ENBC431 | Finite Element Analysis | 3 |
| ENBC441 | Computational Systems Biology | 3 |
| ENBC491 | Senior Capstone Design in Biocomputational Engineering | 3 |
| Professional Writing Requirement | | 3 |
| Elective Courses | | 12 |
| **Total Credits** | | **60** |

## Elective Courses

Students are required to take four technical electives (12 credits). The courses must be selected from an approved list of engineering and biology courses; the list will be updated regularly by the program director. At least two of the elective courses must be from the category of engineering, mathematics, or programming, while at most two of the electives can be from the category of biology courses. The program will offer electives; at the same time, the program will arrange for opportunities for electives outside the program, including USG programs offered by other universities.

| Course | Title | Credits |
|---|---|---|
| **Possible technical electives** | | **12** |
| ENBC403 | Research Methods in Biological Data Mining | |
| ENBC411 | (Advanced Programming in Python) | |
| ENBC413 | (Data Analysis with R) | |
| ENBC423 | Applied Computer Vision | |
| ENBC435 | (Numerical Methods) | |
| ENBC442 | (Computational Molecular Dynamics) | |
| ENBC443 | (Multiscale Simulation Methods) | |
| ENBC444 | (Modeling Protein Folding) | |
| ENBC445 | (Spatial Control of Biological Agents) | |
| ENBC455 | Bioinformatics Engineering | |

# GRADUATION PLANS

Click here (https://eng.umd.edu/advising/four-year-plans/) for roadmaps for graduation plans in the A. James Clark School of Engineering.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Cyber-Physical Systems Engineering Major at Shady Grove

**Program Director:** Romel Gomez, Ph.D.

The Bachelor of Science in Cyber-Physical Systems Engineering will provide students with a solid foundation in key emerging technologies of the Internet of Things (IoT), the ability to integrate devices into complete IoT systems, and an understanding of how IoT fits within the wider context of information and communications technology, including data analytics and cloud computing. At the senior level, students will ultimately be able to specialize in one of the following tracks: Hardware, Computation, or Security track or pursue a General track option that provides a focus on courses from the other three tracks. It is expected that graduates will be in high demand in such occupational areas as hardware/software developers, computer systems analysts, network architects and administrators, information security analysts, information systems analysts and computer programs.

## Admission to the Major

### Clark School Admissions Criteria

All students applying to the Cyber-Physical Systems Engineering (CPSE) program must first meet the Clark School of Engineering's Limited Enrollment Program requirements (https://eng.umd.edu/transfer/external/):

**Engineering LEP Requirements**

- Minimum 3.0 cumulative GPA (from all previous institutions)
- Completion of MATH141 (Calculus II) with a minimum grade of a B-
- Completion of PHYS161 (Physics I) with a minimum grade of B-
- Completion of either CHEM 135, CHEM 271 or CHEM134* with a minimum grade of C-.

Students must adhere to all LEP Admissions policies outlined in the University's LEP Website (https://lep.umd.edu/).

**Students who take an equivalent to CHEM134 must also have completed an equivalent to CHEM131 with a minimum grade of C-.*

### Additional Admissions Requirements

In addition to the LEP admissions criteria, students applying to the Cyber-Physical Systems Engineering (CPSE) major must meet the following requirements:

- Completion of the following major courses with a minimum grade of a C-
  - ENES100: Intro to Engineering Design
  - MATH140: Calculus I
  - PHYS260/261: Physics II
  - An introductory programming course (see curriculum page (https://shadygrove.ece.umd.edu/curriculum/) for details)
  - One of the following math courses:
    - MATH246: Differential Equations
    - MATH241: Calculus III
    - MATH240: Linear Algebra
- Completion of all lower-level General Education requirements (usually satisfied by earning an associate's degree from a community college within the State of Maryland).
- At least 60 transferable credits to UMD

Due to the similarity in curriculum content and the physical location of course offerings, students in the Electrical Engineering, Computer Engineering, and Computer Science programs at UMD will not be eligible to add Cyber-Physical Systems Engineering as a second major or degree.

This program is mainly intended for students transferring from a Maryland public community college. While students at the College Park campus can pursue the program, they will not be able to seek admission into the School of Engineering and the Cyber-Physical Systems Engineering major until they have completed the Engineering LEP gateway courses, required first and and second year major courses, lower-level General Education requirements, and have earned at least 60 credits. The junior and senior years would take place at the Shady Grove campus.

## Program Education Objectives

The program education objective of this program is to produce a well-trained workforce in the emerging technologies of internet of things. The Bachelor of Science in Cyber-Physical Systems Engineering will produce engineering graduates who:

- Use their hardware and software engineering design training and problem-solving skills to contribute professionally in an industrial, research and applications environment;
- Demonstrate initiative, leadership, teamwork, and continued professional development;
- Demonstrate understanding of the impact of their professional activities on society.

## Student Learning Outcomes

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. The ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments that must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

# REQUIREMENTS

## First & Second Year

Prior to being admitted to the Cyber-Physical Systems Engineering major, students should have completed the Engineering LEP gateway courses, basic math/science courses, lower-level General Education requirements, and at least 60 credits.

| Course | Title | Credits |
|---|---|---|
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| ENGL101 | Academic Writing | 3 |
| CHEM135 | General Chemistry for Engineers | 3 |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | 3 |
| PHYS260 | General Physics: Electricity, Magnetism and Thermodynamics | 3 |
| PHYS261 | General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | 1 |
| Programming Requirement [1] | | 2-4 |
| ENES100 | Introduction to Engineering Design | 3 |
| One of the following MATH2xx courses: | | 3-4 |
| MATH246 | Differential Equations for Scientists and Engineers | |
| MATH241 | Calculus III | |
| MATH240 | Introduction to Linear Algebra | |
| General Education Requirements/Additional Electives | | 28-31 |

[1] Any of the following programming courses or their equivalents will be accepted:

- ENEE140
- CMSC131
- CMSC106
- Any introductory course in C, C++, Java, or Python (student must submit the course to ECE Department for Evaluation)

## Junior & Senior Year at Shady Grove

| Junior Year | | | |
|---|---|---|---|
| **First Semester** | **Credits** | **Second Semester** | **Credits** |
| ENEB302 | 4 | ENEB304 | 3 |
| ENEB344 | 4 | ENEB352 | 3 |
| ENEB354 | 3 | ENEB353 | 3 |
| ENEB340 | 3 | ENEB355 | 3 |
| ENEB341 | 3 | ENEB345 | 3 |
| | **17** | | **15** |

| Senior Year | | | |
|---|---|---|---|
| **First Semester** | **Credits** | **Second Semester** | **Credits** |
| ENEB408 (ENEB408A Capstone Design I) | 3 | ENEB408 (ENEB408B Capstone Design II) | 3 |
| ENEB454 | 3 | Senior Level Electives (based on track) | 12 |
| ENEB444 | 3 | | |
| ENEB346 (Linear Algebra for Machine Learning Applications) | 3 | | |
| Professional Writing | 3 | | |
| | **15** | | **15** |

**Total Credits 62**

# Tracks

## Hardware Track

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| ENEB455 | Advanced FPGA System Design using Verilog for Embedded Systems | 3 |
| **Elective Courses** | | **9** |
| Select three of the following: | | |
| ENEB443 | Hardware/Software Security for Embedded Systems | |
| ENEB451 | Network Security | |
| ENEB452 | Advanced Software for Connected Embedded Systems | |
| ENEB453 | Web-Based Application Development | |
| ENEB456 | Machine Learning Tools (Machine Learning Tools) | |
| ENEB457 | Foundations of Databases for Web Applications | |
| **Total Credits** | | **12** |

## Computational Track

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| ENEB456 | Machine Learning Tools (Machine Learning Tools) | 3 |
| **Elective Courses** | | **9** |
| Select three of the following: | | |
| ENEB443 | Hardware/Software Security for Embedded Systems | |
| ENEB451 | Network Security | |
| ENEB452 | Advanced Software for Connected Embedded Systems | |
| ENEB453 | Web-Based Application Development (Web Based Application Development) | |
| ENEB455 | Advanced FPGA System Design using Verilog for Embedded Systems | |
| ENEB457 | Foundations of Databases for Web Applications | |
| **Total Credits** | | **12** |

### Security Track

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| ENEB451 | Network Security | 3 |
| **Elective Courses** | | **9** |
| Select three of the following: | | |
| ENEB443 | Hardware/Software Security for Embedded Systems | |
| ENEB452 | Advanced Software for Connected Embedded Systems | |
| ENEB453 | Web-Based Application Development | |
| ENEB455 | Advanced FPGA System Design using Verilog for Embedded Systems | |
| ENEB456 | Machine Learning Tools (Machine Learning Tools) | |
| ENEB457 | Foundations of Databases for Web Applications (Foundations of Databases for Web Applications) | |
| **Total Credits** | | **12** |

### General Track

The General Track offers a general focus of course content with classes from each of the three tracks. While there are no specific required or elective courses for this track, the General Track requires 12 credits, which is the same as the other three tracks. Consult with an advisor for details.

## GRADUATION PLANS

Click here (https://eng.umd.edu/advising/four-year-plans/) for roadmaps for graduation plans in the A. James Clark School of Engineering.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Mechatronics Engineering Major at Shady Grove

**Program Coordinator**: Anna Moiseeva

Prior to being admitted to the Mechatronics Engineering major, students must complete the prerequisite math/science/engineering courses, lower-level General Education requirements (or an associate's degree), and a total of 60 credits. Students are welcome to apply as transfer students from community college or four-year institutions. Prerequisite requirements can be found on the mechatronics engineering webpage: https://shadygrove.umd.edu/academics/degree-programs/bs-mechatronics-engineering/.

Mechatronics Engineering can be concisely described as the combination of mechanical, electrical, and information systems engineering. The Bachelor of Science in Mechatronics Engineering will provide students with a fundamental understanding of mechatronic systems analysis, the knowledge of how these systems are developed and deployed, and the practical experience required to implement mechatronic systems in real-world applications. Graduates of the program are expected to be highly sought after in fields such as aerospace & defense, energy, infrastructure, manufacturing & automation, robotics, and biomedical engineering. In their senior year, students can focus their electives in one of two tracks: Robotics or Autonomous Air Vehicles.

Mechatronics engineers design, develop, and test automated production systems, transportation and vehicle systems, robotics, computer-machine controls, and many other integrated systems. Mechatronics engineers develop new technologies for use in the automotive and aviation industry, advanced manufacturing operations, and often specialize in areas such as robotics, autonomous vehicles, and manufacturing systems.

## Program Educational Objectives

1. Understand and utilize mechatronics component and system integration; tooling and assembly (with respect to digital and analog electrical components and circuits; embedded systems and control; mechanics (statics and dynamics); pneumatic, hydraulic, industrial controls; automation and PLCs);
2. Utilize systems software analysis tools, programming and control systems engineering; connectivity, industrial communication protocols and information security.
3. Design, select, set-up, and calibrate measurement tools, instrumentation and sensors;
4. Troubleshoot a mechatronics system including test and adjust, maintenance or repair;
5. Prepare laboratory reports and systems integration, drawings associated with development, installation, or maintenance of mechatronics components and systems;
6. Become familiar with and use industry codes, specifications, and standards;
7. Employ statistics, quality and continuous improvement techniques, and industrial organization and management
8. Create and present a capstone or integrating experience that illustrates skills acquired in the program applying both technical and non-technical skills in successfully solving industrial mechatronics problems.

## Student Learning Objectives

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economics factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

# REQUIREMENTS

## Prior Study

Prior to being admitted to the Mechatronics Engineering major, students should have completed the Engineering LEP gateway courses, basic math/science courses, lower-level General Education requirements, and at least 60 applicable degree credits.

| Course | Title | Credits |
|---|---|---|
| ENGL101 | Academic Writing | 3 |
| MATH140 | Calculus I | 4 |
| MATH141 | Calculus II | 4 |
| MATH241 | Calculus III | 4 |
| MATH246 | Differential Equations for Scientists and Engineers | 3 |
| MATH240 | Introduction to Linear Algebra | 4 |
| CHEM135 | General Chemistry for Engineers | 3 |
| PHYS161 | General Physics: Mechanics and Particle Dynamics | 3 |
| PHYS260 | General Physics: Electricity, Magnetism and Thermodynamics | 3 |
| PHYS261 | General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) | 1 |
| PHYS270 | General Physics: Waves, Optics, Relativity and Modern Physics | 3 |
| PHYS271 | General Physics: Electrodynamics, Light, Relativity and Modern Physics (Laboratory) | 1 |
| ENES100 | Introduction to Engineering Design | 3 |
| ENES102 | Mechanics I | 3 |
| ENES220 | Mechanics II | 3 |
| ENES232 | Thermodynamics | 3 |
| ENME202 | Computing Fundamentals for Engineers | 3 |
| or ENAE202 | Computing Fundamentals for Engineers | |
| Lower-Level general education requirements or A.A./A.S. degree from a Maryland public institution | | Varies |

## Required Courses

| Course | Title | Credits |
|---|---|---|
| **Required Foundation Courses** | | **54** |
| ENMT301 | Structural Dynamics | 3 |
| ENMT313 | (Real Time Software Systems and Microprocessors) | 3 |
| ENMT322 | Discrete Signal Analysis | 3 |
| ENMT332 | (Classical Control Theory) | 3 |
| ENMT361 | Mechatronics and Controls I (Mechatronics and Controls Lab I) | 3 |
| ENMT362 | (Mechatronics and Controls Lab II) | 3 |
| ENMT372 | (Robotic Systems) | 3 |
| ENMT380 | Intro to Robotics (Intro to Robotics) | 3 |
| ENMT450 | (Robotics Programming) | 3 |
| ENMT471 | (Manufacturing and Automation) | 3 |
| ENMT473 | (Motion Planning for Autonomous Systems) | 3 |
| ENMT477 | (Machine Learning in Mechatronics Engineering) | 3 |
| ENMT483 | (Mechatronic Systems I) | 3 |
| ENGL39X | (Professional Writing) | 3 |
| ENMT484 | (Mechatronic Systems II) | 3 |
| TECHNICAL ELECTIVE | (Any approved 300 or 400 level course) | 3 |
| TECHNICAL ELECTIVE | (Any approved 300 or 400 level course) | 3 |
| PROGRAM ELECTIVE | (Program-Specific Elective) | 3 |
| **Transfer Credits (Consult with academic advisor)** [1] | | **60-90*** |
| **Total Credits** [2] | | **121** |

[1] May vary depending on previous coursework
[2] Students must have a minimum of 120 credits to complete the program

# GRADUATION PLANS

Click here (https://eng.umd.edu/advising/four-year-plans/) for roadmaps for graduation plans in the A. James Clark School of Engineering.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Biological Sciences Major at Shady Grove

**The Universities at Shady Grove**
9631 Gudelsky Drive
Biomedical Sciences and Engineering Facility (Bldg IV, Room 4110)
Rockville, MD 20850
Phone: 301-738-6007
usgbiosci@umd.edu
http://shadygrove.umd.edu/academics/degree-programs/bs-biological-sciences/

**Program Director:** Dr. Hadiya Woodham
**Program Coordinator:** Tracy Odim

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The Biological Sciences Program at the University of Maryland offers a degree program in Physiology and Neurobiology (PHNB) at the Universities at Shady Grove. The Biological Sciences Program at Shady Grove offers the Advanced Program courses normally taken in the junior and senior years.

All Biological Sciences majors complete a common sequence of introductory and supporting courses referred to as the Basic Program. For students matriculating at the Universities at Shady Grove most of these introductory and supporting courses are taken at a community college or at another four-year institution prior to admission to the Biological Sciences Program. Depending on space available, students who matriculated at College Park may transfer to the Shady Grove Program in their junior year, where they may complete the Advanced Program in Physiology and Neurobiology.

## Program Learning Outcomes

1. Students should have mastered the critical knowledge at each level in the curriculum that is necessary to move on to the next level in the curriculum.
2. Students should demonstrate an ability to use and apply quantitative methods, especially: interpretation of graphical or tabular

data; expression of physical, chemical, or biological process in mathematical form; solving equations to determine the value of physical, chemical, or biological variables.

3. Students at the lower level should demonstrate an ability to carry out key experimental techniques used in the chemical and life sciences disciplines.
4. Students at the lower level should have a basic understanding of how to express questions as a hypothesis, how to design a test of a hypothesis, and how to gather and analyze simple data.
5. Students at the upper level should be able to integrate and apply a relevant body of basic knowledge to the evaluation of existing scientific studies and to design studies to test specific hypotheses that includes design elements typically found in a specific field of the chemical and life sciences.
6. Students should effectively communicate in writing the processes of science and the results of scientific inquiry.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **General Education Program Requirements** [1] | | |
| Complete General Education | | |
| **Basic Program in Biological Sciences** [1] | | |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | 4 |
| BSCI160 & BSCI161 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab | 4 |
| BSCI223 | General Microbiology | 4 |
| BSCI222 | Principles of Genetics | 4 |
| MATH130 | Calculus I for the Life Sciences | 4 |
| or MATH140 | Calculus I | |
| MATH131 | | 4 |
| or MATH141 | Calculus II | |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | 4 |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | 4 |
| CHEM241 & CHEM242 | Organic Chemistry II and Organic Chemistry Laboratory II | 4 |
| CHEM271 & CHEM272 | General Chemistry and Energetics and General Bioanalytical Chemistry Laboratory [2] | 4 |
| **Courses taken at the Universities at Shady Grove** | | |
| PHYS131 | Fundamentals of Physics for Life Sciences I | 4 |
| or PHYS331 | Physics for Life Sciences I | |
| PHYS132 | Fundamentals of Physics for Life Sciences II | 4 |
| or PHYS332 | Physics for Life Sciences II | |
| PHNB | Advanced Program in Physiology and Neurobiology | 27 |
| ELECT | Electives | 22 |
| **Total Credits** | | **97** |

[1] Courses equivalent to be taken at an institution that offers lower level course work.

[2] CHEM272 is not offered at most institutions. Students accepted into the UMCP Shady Grove Biological Sciences may substitute a General Chemistry II Lab for this course

# Advanced Program in Physiology and Neurobiology

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | **13** |
| BCHM461 | Biochemistry I | 3 |
| or BCHM463 | Biochemistry of Physiology | |
| BSCI330 | Cell Biology and Physiology | 4 |
| BSCI353 | Principles of Neuroscience [1] | 3 |
| BSCI450 | Mammalian Systems Physiology | 3 |
| **Physiology and Neurobiology** | | **11** |
| BSCI338 | Special Topics in Biology (BSCI338E: Neuroethology) | |
| BSCI338 | Special Topics in Biology (BSCI338G: Seminar on Deregulated Cell Growth in Cancer and Drug Development) | |
| BSCI338 | Special Topics in Biology (BSCI338P: Pathophysiology of the Circulatory System) | |
| BSCI338 | Special Topics in Biology (BSCI338R: Darwinian Medicine) | |
| BSCI339 | Selected Topics in Biology (BSCI339D: Biology of Chemosensory Systems) | |
| BSCI339 | Selected Topics in Biology (BSCI339F: Neurophysiology of Cells and Circuits) | |
| BSCI339 | Selected Topics in Biology (BSCI339G: Advanced Physiology) | |
| BSCI339 | Selected Topics in Biology (BSCI339I: Cellular Mechanisms of Aging and Disease) | |
| BSCI339 | Selected Topics in Biology (BSCI339Q: Diseases Due to Dysfunctional Cell Organelles) | |
| BSCI339 | Selected Topics in Biology (BSCI339W: Molecular Neuroethology) | |
| BSCI339 | Selected Topics in Biology (BSCI339X: Advanced Cellular Neuroscience) | |
| BSCI348 | Special Topics in Cell Biology and Molecular Genetics (BSCI348C: Cell Biology Lab) [2,3] | |
| BSCI355 | Neurobiology of Extraordinary Senses | |
| BSCI360 | Principles of Animal Behavior | |
| BSCI370 | Principles of Evolution | |
| BSCI374 | Mathematical Modeling in Biology [4] | |
| BSCI401 | Animal Communication | |
| BSCI402 | | |
| BSCI403 | Biology of Vision | |
| BSCI406 | Membranes and Biological Interfaces | |
| BSCI407 | Behavioral Genetics | |
| BSCI410 | Molecular Genetics | |
| BSCI414 | Recombinant DNA Laboratory | |
| BSCI416 | Human Genetics | |
| BSCI420 | Cell Biology Lectures | |
| BSCI421 | | |
| BSCI422 | Principles of Immunology | |

| | | |
|---|---|---|
| BSCI423 | Immunology Laboratory [3] | |
| BSCI430 | Developmental Biology | |
| BSCI433 | Biology of Cancer | |
| BSCI434 | | |
| BSCI442 | Plant Physiology | |
| BSCI443 | Microbial Physiology | |
| BSCI446 | Neural Systems | |
| BSCI447 | General Endocrinology | |
| BSCI452 | Diseases of the Nervous System | |
| BSCI454 | Neurobiology Laboratory [3] | |
| BSCI462 | Population Ecology | |
| BSCI464 | Microbial Ecology | |
| BSCI465 | | |
| Statistics, one course maximum | | |
| BIOM301 | Introduction to Biometrics | |
| STAT400 | Applied Probability and Statistics I | |
| STAT464 | Introduction to Biostatistics | |
| Special Topics Courses [5] | | |
| BSCI328 | Special Topics in Entomology | |
| BSCI338 | Special Topics in Biology | |
| BSCI339 | Selected Topics in Biology | |
| BSCI348 | Special Topics in Cell Biology and Molecular Genetics | |
| Departmental Honors Seminar [6] | | |
| BSCI378H | Cell Biology and Molecular Genetics Department Honors Seminar | |
| BSCI398H | Biology Department Honors Seminar | |
| **Enrichment** | | **3** |
| Minimum 3 credits from any 300- or 400-level BSCI, CHEM, or BCHM course. | | |
| **Total Credits** | | **40** |

## ADVISING

Advising is mandatory during each pre-registration period for all Biological Sciences majors. Advising for students interested in or enrolled in the Shady Grove Program is available from the director. Call 301-738-6007 for an advising appointment.

# College of Behavioral and Social Sciences at Shady Grove

2141 Tydings Hall
Phone: 301-405-1679
bsos@umd.edu
http://bsos.umd.edu

**Dean:** Susan Rivera, Ph.D.
**Associate Deans:** Isabella Alcañiz, Ph.D., Meredith Kleykamp, Ph.D., Patricio Korzeniewicz, Ph.D., Katherine Russell, Ph.D.
**Assistant Deans:** Jacinta Kelly, Kim Nickerson, Ph.D.

The College of Behavioral and Social Sciences at the University of Maryland (BSOS) increases understanding of and pursues innovative solutions to the challenges facing our global community. BSOS draws on its Washington, D.C., and worldwide connections to enrich its teaching, research and service. The BSOS community works to enhance international relations, advance global sustainability, understand societies and cultures and improve the human condition.

In all that we do, BSOS aims to **Be the Solution** to the world's great challenges.

The College of Behavioral and Social Sciences actively practices TerrapinSTRONG values that affirm our mission, culture, and values as a diverse, unified, proud, respectful, inclusive, accountable, and empowered community of people from every background that works to impact positively our globally-connected society.

Students interested in human behavior and in solving human and social problems will find many exciting opportunities through the programs and courses offered by the College of Behavioral and Social Sciences.

## ACADEMIC PROGRAMS

### Major

- Criminology and Criminal Justice Major at Shady Grove (p. 492)

### Minor

- Criminal Justice Minor at Shady Grove (p. 493)

## COLLEGE REQUIREMENTS

### Undergraduate Degree Requirements/ Degree Options

- Each student must complete a minimum of 120 hours of credit with at least a 2.0 cumulative grade point average. Courses must include the credits required in the university's general education requirements and the specific major and supporting course and grade requirements of the programs in the academic departments offering bachelor's degrees.
- Students must have a minimum "C" (2.00) cumulative grade point average across all courses used to satisfy major degree requirements.
- Upon entering BSOS as a freshman, transfer, or by major change, students must complete and submit a graduation plan to the college advising office for review and approval.
- In accordance with university policy, fundamental English and Math requirements must be attempted by 30 credits and successfully completed by 60 credits.
- Students must complete 15 upper level credits in the student's final 30 credits.
- All students are responsible for carefully tracking completion of degree requirements using UAchieve. Students are urged to meet with an academic advisor in their major or college if they have any questions. Advising is especially important two semesters before graduation to discuss final graduation requirements.

## ADVISING

Please refer to your specific program to see advising information and requirements.

- Criminology and Criminal Justice Major at Shady Grove (p. 492)
- Criminal Justice Minor at Shady Grove (p. 493)

# OPPORTUNITIES

## Dean's List

Any student who has passed at least 12 hours of academic work under the regular grading method in the preceding semester, without failure of any course, and with an overall average grade of at least 3.5, will be placed on the Dean's List. The Distinguished Dean's List consists of students who have completed successfully a minimum of 12 credit hours in a semester with a 4.0.

## Student Societies and Professional Organizations

Students who are interested in organizations and honor societies related to their fields of study should consult with departmental websites.

## Financial Assistance

The college offers scholarship opportunities to current students on a competitive basis. Each scholarship has eligibility criteria. Scholarship information and applications are available on the scholarships page on the BSOS website: https://bsos.umd.edu/undergraduate/undergraduate-scholarships/.

The college also offers student experience funds to help support research, internship, and other extracurricular activities: https://bsos.umd.edu/undergraduate/bsos-undergraduate-experience-funds/.

The National Scholarships Office at the University of Maryland provides information on nationally competitive scholarships at the undergraduate (and graduate) level. For more information, please visit: http://scholarships.umd.edu.

The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For more information, visit: http://financialaid.umd.edu.

# Criminology and Criminal Justice Major at Shady Grove

**The Universities at Shady Grove**
9636 Gudelsky Drive
5105 Camille Kendall Academic Center (Building III)
Rockville, MD 20850
Phone: 301-738-6307
ccjsusg@umd.edu
http://shadygrove.umd.edu/academics/degree-programs/ba-criminology-and-criminal-justice/

**Program Director:** Wendy Stickle, Ph.D.

## The Major

Criminology and criminal justice encompasses the study of both the causes of, and responses to crime. It involves studying individual, group, and mass behavior, as well as the institutions, professions, and laws that exist to detect, control, and ameliorate the effects of crime. As a discipline, criminology and criminal justice is situated at the nexus of other social science disciplines such as sociology, psychology, and government, in addition to public policy and legal studies.

The University of Maryland, College Park offers its Bachelor of Arts in Criminology & Criminal Justice at the Universities at Shady Grove. Students transfer into this Program after completing their freshman and sophomore years elsewhere, typically at a junior college. Through this Program, students complete their junior- and senior-year coursework at USG with the option to attend full- or part-time. Upon completion of this Program, students are awarded a University of Maryland, College Park B.A. degree.

## Program Learning Outcomes

Having completed the CCJS degree program, students should have acquired the following knowledge and skills:

1. Students will demonstrate basic knowledge of major criminology and criminal justice content areas.
2. Students will demonstrate a basic knowledge of descriptive and inferential statistics appropriate to the social sciences.
3. Students will demonstrate competence in basic social science research methods.

# REQUIREMENTS

The CCJS major is comprised of 36 credit hours of coursework in the CCJS department and either MATH107 (formerly MATH111) or STAT100. A calculus class (MATH120, MATH130, or MATH140) with a grade of C- or higher may be substituted for MATH107 or STAT100.

| Course | Title | Credits |
|---|---|---|
| **Required CCJS Courses** | | |
| CCJS100 | Introduction to Criminal Justice | 3 |
| CCJS105 | Introduction to Criminology | 3 |
| CCJS200 | Statistics for Criminology and Criminal Justice | 3 |
| CCJS230 | Criminal Law in Action | 3 |
| CCJS300 | Criminological and Criminal Justice Research Methods | 3 |
| **CCJS Criminal Justice Courses** | | |
| Select two of the following: | | 6 |
| CCJS340 | Policing | |
| CCJS345 | Courts and Sentencing | |
| CCJS342 | Corrections | |
| **CCJS Criminology/Theory Course** | | |
| Select one of the following: | | 3 |
| CCJS450 | Advanced Juvenile Delinquency | |
| CCJS451 | Crime and Delinquency Prevention | |
| CCJS454 | Contemporary Criminological Theory | |
| **CCJS Courses of Choice** | | |
| Select four CCJS courses [1] | | 12 |
| **CCJS LEP Gateway Requirements** | | |
| Select one of the following: [2] | | 3 |
| MATH107 | Introduction to Math Modeling and Probability (Formerly MATH111) | |
| STAT100 | Elementary Statistics and Probability | |
| **Total Credits** | | **39** |

[1] Courses of Choice must be completed using one or a combination of the following ways:

- Complete additional CCJS courses that are not required (i.e., CCJS325, CCJS360, CCJS418)
- Complete 1 Independent Study for credit (max 3 credits)
- Complete 1 Internship for credit (max 3 credits)

[2] Note: Two CCJS Courses of Choice must be at the 4xx-level. A calculus class, MATH120 (formerly MATH220), MATH130 or MATH140, with a grade of C- or higher may be substituted

Please keep the following information in mind:

- No grade lower than a C- may be used toward the major
- Students must achieve a combined grade point average of a 2.0 in the CCJS major

# OTHER REQUIREMENTS FOR THE MAJOR

The CCJS Department enforces all prerequisites and does not oversubscribe students to courses that are closed.

# GRADUATION PLANS

Roadmaps for all graduation plans can be found here (http://4yearplans.umd.edu). Select the College of your major to find the corresponding roadmap.

For more information on developing a graduation plan, please refer to the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog.

# ADVISING

All majors are strongly encouraged to see an advisor at least once each semester. Advising is available by appointment in the Camille Kendall Academic Center (Building III), room 5105. Students must complete all course prerequisites and obtain department permission from the Program Director to enroll in most CCJS classes. Call 301-738-6307 or email ccjsusg@umd.edu.

# OPPORTUNITIES

## Internships

The internship must be a learning experience involving work in a criminal justice or criminological setting. Interns are expected to gain valuable information which will add to their overall understanding of the field of criminology and criminal justice. Internship positions must center around gaining new material over the course of the semester and are expected to involve some degree of ongoing training/learning for the intern. Internship placements are subject to the approval of the Internship Director.

## Internship Eligibility

Interns must meet the following criteria:

- Interns must be CCJS majors
- Interns must have completed a minimum of 56 credits at the time of application
- Interns must have a cumulative GPA of at least 2.5 at the time of application
- Interns must work 45 hours per credit over the course of the semester
- A maximum of 6 internship credits per semester and a total of 12 internship credits overall will be permitted
- Internship credit will not be approved for current or previously held jobs

Interns must register themselves for the internship prior to the end of the semester's schedule adjustment period. Obtaining departmental approval for the internship does NOT register the student for the class. Additional information about internships can be picked up from the CCJS advising office in Building III, room 5105 or found on the CCJS@USG blog (https://ccjsusg.blogspot.com/).

## Student Societies and Professional Organizations

There are two student societies available for membership for CCJS majors: the Criminal Justice Student Association (CRIMSA) and Alpha Phi Sigma Honor Society (APS).

The Criminal Justice Student Association (CRIMSA) is dedicated to supplementing our members' academic experience by providing extracurricular opportunities to further explore critical issues involving criminology and criminal justice. Through a regular program of speakers, agency demonstrations, and community service projects, the CRIMSA provides students with valuable information for making decisions about career choices, further graduate level study, and law school. CRIMSA provides students with opportunities for academic and social interaction, and access to criminology and criminal justice researchers, teachers, and practitioners representing a variety of government, academic and commercial corporate and non-profit organizations. All Universities at Shady Grove students, regardless of home institution or major, are eligible for CRIMSA membership. CRIMSA meetings and programs are held at least monthly during the Fall and Spring semesters.

Alpha Phi Sigma (APS) is a National Criminal Justice Honor Society founded 1942 and membership is open to CCJS majors who have completed at least 40 total credits with at least 12 credits in CCJS courses. Undergraduate applicants must have an overall GPA of at least a 3.2 and a major GPA of at least 3.4. Graduate student applicants must have a 3.4 overall GPA. Applicants must fill out an application, submit an official or unofficial transcript, and a check (personal check is fine) made out to Alpha Phi Sigma for $55. The local chapter's name is Omega Iota. Completed applications, check, and transcripts should be submitted to Dr. Stickle in Building III, room 5105. Applications are processed throughout the academic year. You will be notified when you have been officially accepted. Applications are available from Dr. Stickle or at http://ccjs.umd.edu.

## Awards and Recognition

Each year the department selects the outstanding graduating senior for the Peter J. Lejins award. A graduating senior is also selected for the Shady Grove Academic Achievement Award and is eligible to receive the USG Student Leadership Award.

# Criminal Justice Minor at Shady Grove

**The Universities at Shady Grove**
9636 Gudelsky Drive
5105 Camille Kendall Academic Center (Building III)
Rockville, MD 20850
Phone: 301-738-6307
ccjsusg@umd.edu

http://shadygrove.umd.edu/academics/degree-programs/ba-criminology-and-criminal-justice/

**Program Director:** Wendy Stickle, Ph.D.

The Minor in Criminal Justice offers non-CCJS majors at Shady Grove the opportunity to learn more about the criminal justice system and the challenges it faces. Students who complete the minor will have a better understanding of how the criminal justice system, including police, courts, and corrections, operates, its strengths and weaknesses. Students will also be exposed to emerging topics such as forensics, homeland security, elder abuse and human trafficking.

## Program Learning Outcomes

1. Students will demonstrate understanding of the three pillars of our criminal justice system - courts, policing, and corrections
2. Students will demonstrate competency in understanding how criminal justice intersects with a variety of disciplines and career paths
3. Students will demonstrate an understanding of pressing challenges experienced by our criminal justice system
4. Students will demonstrate competency in their ability to read, interpret, and synthesize (in writing and/or orally) important research related to the criminal justice system

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Introductory Course** | | **3** |
| CCJS100 | Introduction to Criminal Justice | |
| or CCJS301 | Fundamentals in Criminal Justice | |
| **Criminal Justice Requirement (Select 2)** | | **6** |
| CCJS340 | Policing | |
| CCJS342 | Corrections | |
| CCJS345 | Courts and Sentencing | |
| **Elective Courses** | | **9** |
| CCJS310 | Criminal Investigations | |
| CCJS325 | Slavery in the Twenty First Century: Combating Human Trafficking | |
| CCJS330 | Contemporary Criminological Issues | |
| CCJS331 | Contemporary Legal Policy Issues | |
| CCJS346 | Domestic Violence | |
| CCJS352 | Drugs and Crime | |
| CCJS358 | Special Topics in Study Abroad III | |
| CCJS360 | Victimology | |
| CCJS370 | Race, Crime and Criminal Justice | |
| CCJS418 | Seminar in Criminology and Criminal Justice | |
| CCJS432 | | |
| CCJS440 | Security Administration | |
| CCJS453 | White Collar and Organized Crime | |
| CCJS461 | Psychology of Criminal Behavior | |
| CCJS498 | Selected Topics in Criminology and Criminal Justice | |
| **Total Credits** | | **18** |

# College of Information at Shady Grove

**The Universities at Shady Grove**
9631 Gudelsky Drive, Rockville, MD 20852
Biomedical Sciences and Engineering (BSE) Education Facility (Building IV) – Office 4109
Phone: 301-738-6243
Email: USGInfoSci@umd.edu
http://ischool.umd.edu/academics/bachelors-programs/bachelor-of-science-in-information-science-shady-grove/
http://shadygrove.umd.edu/academics/degree-programs/bs-information-science-bsis/

**Faculty Program Director:** Galina Reitz, Ph.D.
**Assistant Director:** Tetyana Bezbabna
**Academic Advisor:** Jacob Davidson

The University of Maryland (UMD) College of Information (INFO) is a leading research and teaching college in the field of information science. At INFO, students are prepared to be tomorrow's thought leaders in applications of information and technology for social good – fostering access to information, improving information interfaces, and expanding how information is used in an evolving world.

Through the major (designed for transfer students who have completed their associate's degree or equivalent) and minors offered at The Universities at Shady Grove campus in Montgomery County (Rockville, MD), students develop skills in technical areas alongside areas of the social sciences, leadership, and the humanities – addressing the growing and unique need for information professionals who understand complex social and organizational issues.

Our students learn from expert faculty, known for their research and scholarship, and top industry professionals who join us as prestigious lecturers. Located just outside Washington, D.C., our students have unmatched internship and career opportunities.

## ACADEMIC PROGRAMS

### Major

- Information Science Major at Shady Grove (p. 497)

### Minors

- Information Risk Management, Ethics, and Privacy Minor at Shady Grove (p. 496)
- Technology Innovation Leadership Minor at Shady Grove (p. 501)

## ADVISING

Advisors will help you make informed decisions and feel confident about your plans, which will assist you in meeting your program goals. Your advisor will assist in helping you understand your degree requirements and your options, but you make the decisions, you are in charge of your education!

Please refer to your specific program to see advising information and requirements.

- Information Science Major at Shady Grove (p. 497)
  - Information Risk Management, Ethics, and Privacy Minor at Shady Grove (p. 496)
  - Technology Innovation Leadership Minor at Shady Grove (p. 501)

If you are a prospective student interested in our program and would like to schedule a pre-transfer advising appointment, please email us at usginfosci@umd.edu.

# OPPORTUNITIES

## Undergraduate Research Experiences

Opportunities for undergraduate research experience in the INFO College's research centers become available from time to time. Participation in an on- or off-campus internship, co-op, or other experiential learning opportunity is strongly encouraged. See the Information Science program staff for information on performing research in an INFO center or lab, and contact the Campus Career Services office for assistance in obtaining off-campus positions or experiences.

## Internships

Internships are not required but are strongly encouraged by the program. An internship is a real-world application of concepts and theories that students learn in the classroom. It involves students providing meaningful work in a career field directly related to their major and/or career interest. An internship is an excellent opportunity for a student to gain professional experience in the information science field and build/expand their professional network. The program does not provide internship placements. However, students have access to six career/networking events throughout each academic year (at College Park and Shady Grove campuses), allowing them to meet potential employers from the field.

Students should also consult the College Park Career Center (http://careercenter.umd.edu) and the Shady Grove Career and Internship Services Center (https://shadygrove.umd.edu/student-services/CISC/) for additional internship opportunities.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in awarding scholarships to deserving students. For information, visit their website (https://financialaid.umd.edu/).

UMD BSIS at Shady Grove students are also eligible for the scholarship programs and opportunities offered by the Center for Student Engagement and Financial Resources (https://shadygrove.umd.edu/student-services/csef/) at the Universities at Shady Grove campus.

## Awards and Recognition

### Dean's Award for an Outstanding INFO Project

The Dean's Award for an Outstanding INFO Project will be presented to an INFO student or a group of students (which includes at least one INFO student) for an outstanding design or development project completed for an INFO course. Projects must be nominated by a faculty member(s) and represent outstanding work that furthers understanding by offering new insights into development or design or displays excellence in applying existing state-of-the-art methods and knowledge.

### Laurence B. Heilprin Award

The Laurence B. Heilprin Award will be presented to an INFO student or a group of students (which includes at least one INFO student) for an outstanding paper on a topic in the library and information science that has been written for an INFO course. Papers must be nominated by faculty and represent outstanding work that furthers understanding by offering new insights, incorporating original research, and/or analyzing existing information in new ways.

### Dr. Joan Giesecke Best Student Paper on Health Informatics Award

The Dr. Joan Giesecke Best Student Paper on Health Informatics Award will be presented to a graduate student or a group of graduate students for an outstanding paper written for an INFO course that focuses on any aspect(s) of Health Informatics. The INFO College defines Health Informatics broadly, including any work that focuses on health information management, health information technologies, health data analytics, health-related information needs or behaviors, health librarianship, etc. Papers must be nominated by faculty and represent outstanding work that furthers understanding by offering new insights on issues relating to Health Informatics, incorporating original research, and/or analyzing existing information in new ways.

### Dean's Award for Outstanding Undergraduate Research Achievement

The Dean's Award for Outstanding Undergraduate Research Achievement will be presented to an undergraduate student or a group of undergraduate students for an outstanding research paper or project completed for an INFO course. Projects/papers must be nominated by a faculty member(s) and represent outstanding work that furthers understanding by offering new insights into development or design or displays excellence in applying existing state-of-the-art methods and knowledge.

## Special Advantages and Facilities

At the INFO College, faculty and students are exploring how people access and use information. From developing smart city technology to creating new archival methods, we seek to improve the individual experience and foster connected communities. At our research centers and labs, we enable discovery, creativity, problem-solving, and fun while tackling real-world challenges and developing impactful solutions.

The college operates six research centers, all located at the main College Park campus: the Center for Advanced Study of Communities and Information (CASCI), the Computational Linguistics and Information Processing Lab (CLIP), the Digital Curation Innovation Center (DCIC), the Human-Computer Interaction Lab (HCIL), the Information Policy and Access Center (iPAC), the Trace Research and Development Center.

INFO faculty and doctoral students also participate in or have affiliations with the University of Maryland Institute for Advanced Computer Studies (UMIACS), the Maryland Institute for Technology in the Humanities (MITH), as well as the Departments of Computer Science, English, and Sociology, the Robert H. Smith School of Business, and the College of Education.

# Research Units

The INFO College is home to several research centers and labs:

## Computational Linguistics and Information Processing (CLIP)

Phone: 301-405-6722
http://wiki.umiacs.umd.edu/clip/

**Director:** Dr. Vanessa Frias-Martinez

The Computational Linguistics and Information Processing Lab (CLIP) at Maryland creates and evaluates systems that allow computers to effectively and efficiently use human language – together with large-scale information networks – to perform tasks such as search, translation, summarization and ontological reasoning. It is a part of the broader language science initiative at Maryland and of the University of Maryland Institute for Advanced Computer Studies (UMIACS).

## Center for Archival Futures (CAFE)

cafe-info@umd.edu
http://cafe.ischool.umd.edu (http://cafe.ischool.umd.edu/)

The Center for Archival Futures (CAFe) develops and disseminates human-centered approaches to creating the systems, processes, and institutions that enable the use of and care for digital objects and data over time. We take a holistic view of archives and digital curation as a research area, education domain, and growing profession that transcends disciplines and organizational contexts.

## The Human-Computer Interaction Lab (HCIL)

2117 Hornbake Bldg, South Wing, College Park
Phone: 301-405-2769
hcil-info@cs.umd.edu
http://hcil.umd.edu (http://hcil.umd.edu/)

**Director:** Dr. Jessica Vitak
**Associate Director:** Dr. Joel Chan

The Human-Computer Interaction Lab (HCIL) transforms the experience people have with new technologies. From understanding user needs to developing and evaluating the technologies that support users' needs, the lab's faculty, staff, and students have been leading the way in HCI research and teaching for over 30 years. It is critical to understand how the needs and dreams of people can be reflected in future technologies. To this end, the HCIL develops advanced user interfaces and design methodology. The primary activities include collaborative research, publication, and the sponsorship of seminars and brown bag talks, workshops, and an annual symposium. The HCIL, though referred to as a lab, is actually a research center that is jointly administered by the INFO and UMIACS and has multiple labs, faculty, and students associated with it.

## Trace Research and Development Center

Room 2117 Hornbake Bldg, South Wing, College Park
Phone: 301-405-2043
trace-info@umd.edu
http://trace.umd.edu (http://trace.umd.edu/)

**Director:** Dr. Jonathan Lazar

The Trace Center's purpose is to apply engineering, computer science, disability studies, public policy, and information science to prevent the barriers to, and capitalize on the opportunities presented by, current and emerging information and communication technologies. Our vision is of a world accessible and usable by people of all ages and all abilities – each experiencing ICT in a way they can understand and use. Founded in 1971, Trace has been a pioneer known for high-impact research and development, including access features implemented in computer operating systems, leadership in the development of Web Content Accessibility Guidelines and many other accessibility standards, and techniques used to increase the accessibility of self-service kiosks in post offices, train stations, and airports. Trace is currently a leader in the development and large-scale deployment of a Global Public Inclusive Infrastructure that combines cloud computing, web, and platform services to make online information and services available for people facing accessibility barriers.

## Social Data Science Center (SODA)

http://socialdatascience.umd.edu (http://socialdatascience.umd.edu/)

**Co-Directors:** Dr. Brian Butler and Professor Frauke Kreuter

The Social Data Science Center (SoDa) – established by the College of Information and the Joint Program in Survey Methodology (JPSM) within the College of Behavioral and Social Sciences – is an interdisciplinary academic and research center. SoDa plans to sponsor seminars, workshops, and focused conferences designed to bring attention to the rapidly expanding universe of digitized data and new forms of behavioral data, as well as developments in data science that can benefit investigators in the social sciences.

# Information Risk Management, Ethics, and Privacy Minor at Shady Grove

**Faculty Program Director:** Galina Reitz, Ph.D.
**Assistant Director:** Tetyana Bezbabna
**Academic Advisor:** Jacob Davidson

The 5-course Information Science undergraduate minor in Risk Management, Ethics, and Privacy is designed to prepare students to evaluate major information and big data privacy and security issues facing individuals and organizations. The curriculum will examine risks organizations face while collecting, storing, and managing information and their existing customers' and stakeholders' data. Coursework will focus on practical strategies to mitigate risks and will explore the ways emerging technologies benefit in the context of risk management, ethics, and privacy.

All courses in the Information Risk Management, Ethics, and Privacy minor are offered virtually and are available to students from both College Park and Shady Grove campuses.

# Program Learning Outcomes

1. Perform information security risk assessment, identify potential threats, and develop threat mitigation strategies.
2. Describe individual privacy rights, related laws and regulations, and the use of information assurance technologies to support the enforcement of these rights.
3. Describe the responsibilities of all levels of users related to the threats against information systems.

4. Describe security design principles and identify security mechanisms to implement desired security principles.
5. Identify malicious activities and attacks, and recommend appropriate response capabilities.
6. Perform audit procedures, evaluate the strengths and weaknesses of security mechanisms, and develop contingency plans to address the limitations of those procedures
7. Communicate information security concepts to individuals with diverse levels of computing skills.

## REQUIREMENTS

**Minor Completion Requirements**
In order to complete the minor, students must:

- Complete all 15 required credits.
- Achieve a minimum grade of "C-" or better in all minor courses.
- At least nine credits must be completed at the 400-level to earn the minor.
- Only six credits or two courses from the minor are allowed to satisfy a degree requirement towards your major. Please consult with your academic advisor for more information.
- Students who matriculate to the university starting in fall 2012 (freshmen and transfers) must achieve a cumulative 2.0 GPA in their minor and major courses.
- No more than 6 credits can be completed at an institution other than the University of Maryland, College Park.
- The posting of a minor on a student's official transcript is done concurrently with the posting of the bachelor's degree. Therefore, all minor classes must be completed prior to graduation.

More information about the minor declaration process can be found at http://ischool.umd.edu/academics/bachelors-programs/bachelor-of-science-in-information-science-shady-grove/admissions/.

| Course | Title | Credits |
|---|---|---|
| INST364 | Human-Centered Cybersecurity | 3 |
| INST366 | Privacy, Security and Ethics for Big Data | 3 |
| INST455 | Information Assurance and Compliance | 3 |
| INST456 | Risk Management Leadership in the Information Age (Risk Management Leadership in the Information Age) | 3 |
| INST461 | Emerging Technologies and Risk Management | 3 |
| **Total Credits** | | **15** |

## ADVISING

Admission and advising for the Information Risk Management, Ethics, and Privacy minor is managed by the UMD Information Science undergraduate team at the Universities at Shady Grove campus (Rockville, MD).

Please note that advising questions related to how the Minor courses may count towards degree requirements or other program requirements should be directed to a student's academic advisor.

If you have any questions about this minor, please email usginfosci@umd.edu.

# Information Science Major at Shady Grove

**Notice of Addendum:** This page has been updated effective Fall 2024. See Addenda to this Catalog (p. 1113) for details.

**The Universities at Shady Grove**
9631 Gudelsky Drive, Rockville, MD 20852
Biomedical Sciences and Engineering (BSE) Education Facility (Building IV) – Office 4109
Phone: 301-738-6243
Email: USGInfoSci@umd.edu
http://ischool.umd.edu/academics/bachelors-programs/bachelor-of-science-in-information-science-shady-grove/
http://shadygrove.umd.edu/academics/degree-programs/bs-information-science-bsis/

**Faculty Program Director:** Galina Reitz, Ph.D.
**Assistant Director:** Tetyana Bezbabna
**Academic Advisor:** Jacob Davidson

The University of Maryland College of Information (INFO) is driven by the pursuit of big ideas and discoveries that empower people and inspire communities. From labs to libraries, we combine information science principles with cutting-edge technology to foster access to information, improve information interfaces, and expand how information is used in government, education, business, social media, and more.

Located just outside Washington, D.C., the iSchool provides unmatched research, internship, and career opportunities with government agencies, nonprofits, and businesses that shape information science and policy.

## The Major

The field of information science, particularly in an iSchool, is a field concerned with the intersections of information, people and technology. It is an interdisciplinary field, drawing from other areas of study such as computer science, management, social science, education, and the humanities, but with a focus on individual and institutional users of information and their information needs. Information Science students gain the knowledge and the skills for creating information systems, resources, and services that help address society's pressing needs in a variety of contexts and in a variety of private and public sector positions, ranging from financial services to healthcare; from information technology to consulting; and from education to cultural institutions. Undergraduate courses offered by this college may be found under the acronym: INST.

Starting in Fall 2018, UMD iSchool offers the Bachelor of Science in Information Science (BSIS) program at the Universities at Shady Grove (USG) (https://www.shadygrove.umd.edu/) campus, as well as the College Park campus.

Qualified transfer students are admitted to the BSIS at Shady Grove program as a cohort group. Students complete their degree over four consecutive semesters as full-time students, taking five 3-credit courses per semester, and graduate with a Bachelor of Science in Information Science degree. The BSIS program at Shady Grove is a cohort program with a pre-set class schedule to ensure admitted students are able to complete their degree in four consecutive semesters.

The BSIS at Shady Grove program offers outstanding nationally recognized faculty, uniquely qualified for excelled learning classrooms,

academic support, valuable financial resources, career advising, and various student engagement and leadership opportunities.

Restriction: Students are not permitted to double-major or double-degree with the Bachelor of Arts in Technology and Information Design.

## Admission Requirements

**Please note that admission into the BSIS at Shady Grove program is during the fall semesters only.**

To be considered for admission to the BSIS program at Shady Grove, applicants must complete the following admission requirements:

1. Minimum 2.5 cumulative GPA (preferred, but may vary based on the overall application pool)
2. Have successfully (with a grade "C-" or better) completed the following BSIS benchmarks or their equivalents:
   - MATH 115 - Precalculus (or higher)
   - PSYC 100 - Intro to Psychology
   - STAT 100 - Elementary Statistics
   - INST 126 - Intro to Programming
3. Have completed 60 college-level credits:
   - Have completed a two-year Associate of Arts (A.A.) or Associate of Science (A.S.) degree in information science or other related fields
     OR
   - Have completed all General Education requirements (https://academiccatalog.umd.edu/undergraduate/general-education-requirements/#text) with the Exception of Professional Writing

## Program Learning Outcomes

At the completion of this program, students will be able to:

1. Demonstrate an understanding of information design and management: the interrelationships among information consumers or creators, information content, and the conduits through which information flows.
2. Apply basic principles to the design, development and management of information to meet the needs of diverse users.
3. Assess the impact of existing or emerging technologies on information practices and the flow of information.
4. Employ state-of-the-art tools and techniques to create, manage, and analyze information.
5. Demonstrate an understanding of critical issues including the security, privacy, authenticity, and integrity of information.

## REQUIREMENTS

With the aid of an academic advisor, the BSIS student devises a course plan to meet the graduation requirements: ten core courses, five major electives, professional writing, and four open electives, for a total of twenty courses (60 credits). At least 45 of the 60 credits must be courses taken from the College of Information.

The Bachelor of Science degree will be awarded to the student who successfully completes a program of 120 undergraduate hours, with a cumulative grade point average of 2.0 on a 4.0 scale for all courses taken for undergraduate credit since matriculation into the program. A student whose cumulative grade point average at any time in the program is lower than 2.0 is automatically placed on academic probation by the College until the problem leading to probationary status has been corrected. Students have one semester to raise their GPA over 2.0.

Upon completion of all degree requirements, students will earn a Bachelor of Science (B.S.) degree from the College of Information at the University of Maryland College Park.

## Benchmark Courses

All BSIS at Shady Grove students need to have successfully completed (with a C- or better) all benchmark courses or their equivalents prior to taking program courses.

| Course | Title | Credits |
|---|---|---|
| MATH115 | Precalculus (or higher) | 3 |
| PSYC100 | Introduction to Psychology | 3 |
| STAT100 | Elementary Statistics and Probability | 3 |
| INST126 | Introduction to Programming for Information Science [1] | 3 |

[1] Other courses exist which fulfill this requirement. Please check with your advisor to make sure that a particular course fulfills this requirement before registering.

## BSIS Curriculum

This program requires the completion of twenty 3-credit courses. Students are expected to follow all course prerequisites, course sequences, and major requirements.

| Course | Title | Credits |
|---|---|---|
| **INST Core Courses** | | |
| Select ten of the following: | | 30 |
| INST301 | Introduction to Information Science | |
| INST311 | Information Organization | |
| INST314 | Statistics for Information Science | |
| INST326 | Object-Oriented Programming for Information Science | |
| INST327 | Database Design and Modeling | |
| INST335 | Organizations, Management and Teamwork | |
| INST346 | Technologies, Infrastructure and Architecture | |
| INST352 | Information User Needs and Assessment | |
| INST362 | User-Centered Design | |
| INST490 | Integrated Capstone for Information Science | |
| **INST Elective Courses** | | |
| Complete at least 15 credits of INST-coded major electives | | 15 |
| Complete 12 credits of open electives | | 12 |
| **Professional Writing** | | **3** |
| **Total Credits** | | **60** |

## ADVISING

All current BSIS @ USG students are required to meet with an Academic Advisor prior to registration for each academic semester. Advising is available by appointment in the Biomedical Sciences and Engineering (BSE) Education Facility (the Universities at Shady Grove campus (https://www.google.com/maps/dir//universities+at+shady+grove/data=!4m6!4m5!1m1!4e2!1m2!1m1!1s0x89b632b6a8fe197f:0x292768fbf6722042/?

sa=X&ved=2ahUKEwikzayx-8juAhUUFVkFHQXCBMIQ9RcwDnoECBYQBQ)), room 4109. Your Academic Advisor will help you make informed decisions and feel confident about your plans, which will assist you in meeting your program goals. Your advisor will assist in helping you understand your degree requirements and your options, but you make the decisions; you are in charge of your education!

If you are a prospective student interested in our program and would like to schedule a pre-transfer advising appointment, please email us at usginfosci@umd.edu.

# OPPORTUNITIES

## Undergraduate Research Experiences

Opportunities for undergraduate research experience in the INFO College's research centers become available from time to time. Participation in an on- or off-campus internship, co-op, or other experiential learning opportunity is strongly encouraged. See the Information Science program staff for information on performing research in an INFO center or lab, and contact the Campus Career Services office for assistance in obtaining off-campus positions or experiences.

## Internships

Internships are not required but are strongly encouraged by the program. An internship is a real-world application of concepts and theories that students learn in the classroom. It involves students providing meaningful work in a career field directly related to their major and/or career interest. An internship is an excellent opportunity for a student to gain professional experience in the information science field and build/expand their professional network. The program does not provide internship placements. However, students have access to six career/networking events throughout each academic year (at College Park and Shady Grove campuses), allowing them to meet potential employers from the field.

Students should also consult the College Park Career Center (http://www.careercenter.umd.edu) and the Shady Grove Career and Internship Services Center (https://shadygrove.umd.edu/student-services/CISC/) for additional internship opportunities.

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit their website (https://financialaid.umd.edu/).

UMD BSIS at Shady Grove students are also eligible for the scholarship programs and opportunities offered by the Center for Student Engagement and Financial Resources (https://shadygrove.umd.edu/student-services/csef/) at the Universities at Shady Grove campus.

## Awards and Recognition

### Dean's Award for an Outstanding INFO Project

The Dean's Award for an Outstanding INFO Project will be presented to an INFO student or a group of students (which includes at least one INFO student) for an outstanding design or development project completed for an INFO course. Projects must be nominated by a faculty member(s) and represent outstanding work that furthers understanding by offering new insights into development or design or displays excellence in applying existing state-of-the-art methods and knowledge.

### Laurence B. Heilprin Award

The Laurence B. Heilprin Award will be presented to an INFO student or a group of students (which includes at least one INFO student) for an outstanding paper on a topic in the library and information science that has been written for an INFO course. Papers must be nominated by faculty and represent outstanding work that furthers understanding by offering new insights, incorporating original research, and/or analyzing existing information in new ways.

### Dr. Joan Giesecke Best Student Paper on Health Informatics Award

The Dr. Joan Giesecke Best Student Paper on Health Informatics Award will be presented to a graduate student or a group of graduate students for an outstanding paper written for an INFO course that focuses on any aspect(s) of Health Informatics. The INFO defines Health Informatics broadly, including any work that focuses on health information management, health information technologies, health data analytics, health-related information needs or behaviors, health librarianship, etc. Papers must be nominated by faculty and must represent outstanding work that furthers understanding by offering new insights on issues relating to Health Informatics, incorporating original research, and/or analyzing existing information in new ways.

### Dean's Award for Outstanding Undergraduate Research Achievement

The Dean's Award for Outstanding Undergraduate Research Achievement will be presented to an undergraduate student or a group of undergraduate students for an outstanding research paper or project completed for an INFO course. Projects/papers must be nominated by a faculty member(s) and represent outstanding work that furthers understanding by offering new insights into development or design or displays excellence in applying existing state-of-the-art methods and knowledge.

## Special Advantages and Facilities

At the INFO College, faculty and students are exploring how people access and use information. From developing smart city technology to creating new archival methods, we seek to improve the individual experience and foster connected communities. At our research centers and labs, we enable discovery, creativity, problem-solving, and fun while tackling real-world challenges and developing impactful solutions.

The college operates six research centers, all located at the main College Park campus: the Center for Advanced Study of Communities and Information (CASCI), the Computational Linguistics and Information Processing Lab (CLIP), the Digital Curation Innovation Center (DCIC), the Human-Computer Interaction Lab (HCIL), the Information Policy and Access Center (iPAC), and the Trace Research and Development Center.

INFO faculty and doctoral students also participate in or have affiliations with the University of Maryland Institute for Advanced Computer Studies (UMIACS), and the Maryland Institute for Technology in the Humanities (MITH) as well as the Departments of Computer Science, English, and Sociology, the Robert H. Smith School of Business, and the College of Education.

# Research Units

The INFO College is home to several research centers and labs:

## The Center for the Advanced Study of Communities and Information (CASCI)

Hornbake Bldg, South Wing, College Park
Phone: 301-405-2033
http://casci.umd.edu

**Co-Directors:** Dr. Jessica Vitak, Dr. Susan Winter

The Center for the Advanced Study of Communities and Information (CASCI) is a multidisciplinary research network based at the University of Maryland. CASCI exists to facilitate research and education that advances our understanding of the technology, information, and organizational approaches needed to realize the potential of 21st-century communities to support learning, facilitate innovation, transform science and scholarship, promote economic development, and enhance individual and civic well-being.

## Computational Linguistics and Information Processing (CLIP)

Phone: 301-405-6722
http://wiki.umiacs.umd.edu/clip/index.php/

**Director:** Dr. Jordan Boyd-Graber

The Computational Linguistics and Information Processing Lab (CLIP) at Maryland creates and evaluates systems that allow computers to effectively and efficiently use human language and large-scale information networks to perform tasks such as search, translation, summarization, and ontological reasoning. It is a part of the broader language science initiative at Maryland and the University of Maryland Institute for Advanced Computer Studies (UMIACS).

## Digital Curation Innovation Center (DCIC)

4110 Hornbake Bldg, South Wing, College Park
Phone: 301-405-2033
dcic.ischool@umd.edu
http://dcic.umd.edu

**Director:** Dr. Richard Marciano
**Assistant Director:** Noah Dibert
**Digitization Lab Director:** Dr. Ken Heger
**ARC Lab Director:** Dr. Ricky Punzalan

The Digital Curation Innovation Center (DCIC) was founded to lead research and education in digital curation and foster interdisciplinary partnerships using Big Records and archival analytics through public/industry/government partnerships. DCIC sponsors interdisciplinary projects that explore the integration of archival research data, user-contributed data, and technology to generate new forms of analysis and historical research.

## The Human-Computer Interaction Lab (HCIL)

2117 Hornbake Bldg, South Wing, College Park
Phone: 301-405-2769
hcil-info@cs.umd.edu
http://hcil.umd.edu

**Director:** Dr. Niklas Elmqvist
**Associate Director:** Dr. Jessica Vitak
**Associate Director of Research:** Dr. Catherine Plaisant
**Assistant Director of Technology:** Dr. Evan Golub

The Human-Computer Interaction Lab (HCIL) transforms the experience people have with new technologies. From understanding user needs to developing and evaluating the technologies that support users' needs, the lab's faculty, staff, and students have been leading the way in HCI research and teaching for over 30 years. It is critical to understand how the needs and dreams of people can be reflected in future technologies. To this end, the HCIL develops advanced user interfaces and design methodology. The primary activities include collaborative research, publication, and the sponsorship of seminars and brown bag talks, workshops, and an annual symposium. The HCIL, though referred to as a lab, is actually a research center that is jointly administered by the INFO and UMIACS, and has multiple labs, faculty, and students associated with it.

## The Information Policy and Access Center (IPAC)

4121 Hornbake Bldg, South Wing, College Park
Phone: 301-405-9445
http://ipac.umd.edu

**Co-Directors:** Dr. John Bertot, Dr. Paul Jaeger, Dr. Mega Subramaniam

The Information Policy & Access Center (iPAC) is a response to the pressing need for research on the processes, practices, policies, and social issues that govern access to information in our increasingly digital information society. We at iPAC are committed to studying what policies and/or technologies lead to equitable and inclusive information access, a digitally-ready population, an informed and engaged public, access to Internet-enabled resources and technologies, or preservation of the cultural record, among key examples.

## Trace Research and Development Center

Room 2117 Hornbake Bldg, South Wing, College Park
Phone: 301-405-2043
trace-info@umd.edu
http://trace.umd.edu

**Director:** Dr. Gregg Vanderheiden

The Trace Center's purpose is to apply engineering, computer science, disability studies, public policy, and information science to prevent the barriers to, and capitalize on the opportunities presented by current and emerging information and communication technologies. Our vision is of a world that is accessible and usable by people of all ages and all abilities – each experiencing ICT in a way they can understand and use. Founded in 1971, Trace has been a pioneer known for high-impact research and development, including access features implemented in computer operating systems, leadership in the development of Web Content Accessibility Guidelines, and many other accessibility standards and techniques used to increase the accessibility of self-service kiosks in post offices, train stations, and airports. Trace is currently a leader in the development and large-scale deployment of a Global Public Inclusive Infrastructure that combines cloud computing, web, and platform services to make online information and services available for people facing accessibility barriers.

# Careers in Information Science

Many new and emerging job positions are becoming available in Information Science. The demand for individuals who can fill those positions is expected to continue to grow. INFO graduates will be

prepared to compete for these positions in all organizations – including government institutions, non-profits, educational and cultural institutions, and the private sector.

The InfoSci degree will prepare you to compete for various positions and job functions. Listed are some of the types of positions that might be of interest to an InfoSci grad.

Interested in working with data to find novel information that can help guide strategic decision-making or help others analyze data? Below are some examples of positions you could have with links to information about salary, position description, and popular employers:

- Data Analyst (https://www.payscale.com/research/US/Job=Data_Analyst/Salary/)
- Data Scientist (https://payscale.com/research/US/Job=Data_Scientist%2C_IT/Salary/)
- Data Steward (https://www.payscale.com/research/US/Job=Data_Steward/Salary/)
- Database Administrator (https://www.payscale.com/research/US/Job=Database_Administrator_(DBA)/Salary/)

Want to work with individuals and teams to understand their information needs and their expectations for tools and applications they will use to work with information? You might be interested in a position like:

- User Experience Designer (https://www.payscale.com/research/US/Job=User_Experience_Designer/Salary/)
- User Interface Designer (https://www.payscale.com/research/US/Job=User_Experience_Designer/Salary/)

If you are looking for a job where you work to gather, organize, and disseminate information to members of an organization to address their information needs, you should look for positions like:

- Content Management Specialist (https://www.payscale.com/research/US/Job=Web_Content_Manager/Salary/)

Want to design, develop, and/or deploy an information system and manage individuals and teams who do such work? You might like to work as one of the following:

- Systems Architect (https://www.payscale.com/research/US/Job=Systems_Architect/Salary/)
- Data Architect (https://www.payscale.com/research/US/Job=Data_Architect/Salary/)
- Project Manager (https://www.payscale.com/research/US/Job=Project_Manager%2c_Information_Technology_(IT)/Salary/)

# Technology Innovation Leadership Minor at Shady Grove

**Faculty Program Director:** Galina Reitz, Ph.D.
**Assistant Director:** Tetyana Bezbabna

The minor in Technology Innovation Leadership will prepare students to effectively create and navigate a climate of technological innovation within an organization or team. By combining creative leadership practices with design thinking skills and analysis of sociotechnical challenges, students will tackle large-scale problems relating to technology innovation. The program will center on innovation thinking, a critical addition to business thinking, which will allow students to bring new ideas and energy to their leadership experiences and sociotechnical challenges. Coursework will examine the different ways leaders and social entrepreneurs strategically use innovative technologies and information to solve social, cultural, and environmental problems.

There are five (5) three-credit courses required as part of the minor.

All courses in the Technology Innovation Leadership minor are offered online by the UMD Information Science program through its **Shady Grove campus location** and are available to students from both College Park and Shady Grove campuses.

## Program Learning Outcomes

1. Describe and analyze the principles of technology innovation, leadership, and entrepreneurship.
2. Assess the role entrepreneurship and technology innovation play in societal well-being and development.
3. Describe and apply practical, hands-on entrepreneurial and leadership skills through developing creative and innovative solutions to solve societal issues.
4. Analyze ways that Social Entrepreneurs strategically use innovative technologies and information to solve social, cultural, and environmental issues.
5. Implement best practices and knowledge to successfully lead, create, and discover while sustaining the culture of innovation in their organizations and teams.

## REQUIREMENTS

**Minor Completion Requirements**
In order to complete the minor, students must:

- Complete all 15 required credits.
- Achieve a minimum grade of "C-" or better in all minor courses.
- At least nine credits must be completed at the 400-level to earn the minor.
- Only six credits or two courses from the minor are allowed to satisfy a degree requirement towards your major. Please consult with your academic advisor for more information.
- Students who matriculate to the university starting in fall 2012 (freshmen and transfers) must achieve a cumulative 2.0 GPA in their minor and major courses.
- No more than 6 credits can be completed at an institution other than the University of Maryland, College Park.
- The posting of a minor on a student's official transcript is done concurrently with the posting of the bachelor's degree. Therefore, all minor classes must be completed prior to graduation.

More information about the minor declaration process can be found at http://ischool.umd.edu/academics/bachelors-programs/bachelor-of-science-in-information-science-shady-grove/admissions/.

| Course | Title | Credits |
|---|---|---|
| INST363 | Fundamentals of Technology Innovation | 3 |
| INST407 | Leading and Sustaining a Culture of Innovation | 3 |
| INST457 | (Lean Startup) | 3 |
| INST453 | Project Management for Information Science | 3 |
| INST463 | Technology Socialprenuer (The Technology Socialpreneur) | 3 |
| **Total Credits** | | **15** |

# ADVISING

Admission and advising for the Technology Innovation Leadership minor is managed by the UMD Information Science undergraduate team at the Universities at Shady Grove campus (Rockville, MD).

Please note that advising questions related to how the Minor courses may count towards degree requirements or other program requirements should be directed to a student's academic advisor.

If you have any questions about this minor, please email usginfosci@umd.edu.

# Communication Major at Shady Grove

**The Universities at Shady Grove**
9636 Gudelsky Drive
5119 Camille Kendall Academic Center (Building III)
Rockville, MD 20850
Phone: 301-738-6208
sgcomm@umd.edu
http://shadygrove.umd.edu/academics/degree-programs/ba-communication/

**Program Director:** Leah Waks, Ph.D.

The department offers an exciting curriculum that prepares students for academic and professional careers in business, government, health, education, social and human services, and related fields. Courses offered by the department include persuasion and social influence, rhetoric and the analysis of messages, communication and new media, digital communication, organizational communication, public relations strategies, and intercultural communication. All students in the program at Shady Grove are required to complete mandatory advising each semester.

# Admission to the Major

Students interested in Communication should have an overall GPA of 2.7 or better, and a grade of "C-" or better in each of the three courses specifically required by the major (COMM250, COMM107, Statistics, or their equivalents). Applicants should also attain junior standing (56 or more transferable college credits) by the time of enrollment. For more information on admission and 1xx or 2xx-level coursework requirements, please visit the Communication website at http://shadygrove.umd.edu/academics/degree-programs/ba-communication/ or the Transfer Credit Services website at http://transfercredit.umd.edu. Requirements for the major are as follows:

1. Complete one of the following courses with a grade of "C-" or better: BMGT230, CCJS200, EDMS451, PSYC200, SOCY201, STAT100 or equivalent.
2. Complete COMM107, COMM200, COMM230, or equivalent with a grade of "C-" or better
3. Complete COMM250 or equivalent with a grade of "C-" or better
4. A cumulative GPA of 2.7 or better

Students may repeat only one of the gateway courses and that may be repeated only once in their attempt to meet the requirements.

## Transfer Students

Internal and external transfer students who meet the gateway requirements specified above and have a cumulative GPA of 2.7 in all college-level coursework may apply to the program.

## Appeals

All students may appeal admission decisions. Those students denied admission may appeal to the university's Office of Undergraduate Admissions.

# Program Learning Outcomes

Upon completion of the degree program in Communication, students should be able to demonstrate the following knowledge and skills:

1. An ability to distinguish among a variety of theoretical approaches in the communication discipline and use them appropriately and effectively in academic work.
2. An ability to conduct research and write research reports employing social scientific and/or humanistic approaches in the communication discipline.
3. An ability to argue clearly and effectively in a speech.

# REQUIREMENTS

The course of study for a Communication major must satisfy all of the following requirements:

| Course | Title | Credits |
|---|---|---|
| **Oral Communication** | | |
| Select one of the following: | | 3 |
| COMM107 | Oral Communication: Principles and Practices | |
| COMM200 | Critical Thinking and Speaking | |
| COMM230 | Argumentation and Debate | |
| **Modes of Communication Inquiry** | | |
| COMM250 | Introduction to Communication Inquiry | 3 |
| **Fundamentals of Communication Skills** | | |
| COMM130 | Professional Communication and Writing | 1 |
| Select one of the following: | | 3 |
| BMGT230 | Business Statistics | |
| STAT100 | Elementary Statistics and Probability | |
| EDMS451 | Introduction to Educational Statistics | |
| CCJS200 | Statistics for Criminology and Criminal Justice | |
| PSYC200 | Statistical Methods in Psychology | |
| SOCY201 | Introductory Statistics for Sociology | |
| **Communication Studies** | | |
| **Communication Theory & Principles** | | **6** |
| COMM201 | Introduction to Public Relations | |
| COMM301 | Rhetorical Theories | |
| COMM302 | Communication Science Theories | |
| COMM303 | Media Theory | |
| **Research Methods** | | |
| COMM304 | Communication Research Literacy | 3 |
| Select one of the following: | | 3 |
| COMM305 | Qualitative Communication Research Methods | |
| COMM306 | Rhetorical Methods in Communication | |
| COMM307 | Quantitative Methods in Communication | |

| | | |
|---|---|---|
| **Select one of the following Leadership & Social Change courses:** | | **3** |
| COMM330 | Argumentation and Public Policy | |
| COMM385 | Influence | |
| COMM420 | Theories of Group Discussion | |
| COMM421 | Communicating Leadership | |
| COMM422 | Communication Management | |
| COMM424 | Communication in Complex Organizations | |
| COMM425 | Negotiation and Conflict Management | |
| COMM428 | Special Topics Seminar in Dialogues and Deliberation | |
| COMM436 | Interpersonal Arguing | |
| COMM448 | Special Topics in Public Relations | |
| COMM449 | Special Topics in Digital Communication | |
| COMM455 | Speechwriting | |
| COMM459 | Special Topics in Science Communication | |
| COMM461 | Voices of Public Leadership in the Twentieth Century | |
| COMM462 | Visual Communication | |
| COMM469 | The Discourse of Social Movements | |
| COMM470 | Listening | |
| COMM475 | Persuasion | |
| **Select one of the following Diversity & Inclusion courses:** | | **3** |
| COMM324 | Communication and Gender | |
| COMM360 | The Rhetoric of Black America | |
| COMM382 | Essentials of Intercultural Communication | |
| COMM398 | Selected Topics in Communication (COMM398B: Communication, Culture & Sport) | |
| COMM454 | Rhetoric of the 1960s | |
| COMM460 | Public Life in American Communities, 1634-1900 | |
| **Applied** | | |
| Select one of the following: | | 3 |
| COMM386 | Experiential Learning | |
| COMM388 | Communication Practicum | |
| COMM498 | Seminar | |
| Select one of the following: | | 3 |
| COMM330 | Argumentation and Public Policy | |
| COMM331 | News Writing and Reporting for Public Relations | |
| COMM370 | Mediated Communication | |
| COMM371 | Communication and Digital Media | |
| COMM375 | Documentary Theory and Practice | |
| COMM386 | Experiential Learning | |
| COMM388 | Communication Practicum | |
| COMM425 | Negotiation and Conflict Management | |
| COMM426 | Conflict Management | |
| COMM455 | Speechwriting | |
| **Electives** | | |
| 3xx or 4xx-Level COMM Electives | | 12 |
| **Total Credits** | | **46** |

**Notes:**

- Because the department's curriculum changes over time, the department's Undergraduate Director may approve other appropriate Communication courses to meet the requirements for each track.
- Courses required for the Communication major, but taken outside COMM, may be used to satisfy general education requirements.
- Only 3 credits of COMM386 may apply toward the major.
- No course grade below the grade of "C-" may count toward the major.
- An overall GPA of 2.0 in the major is required for graduation.

# GRADUATION PLANS

Roadmaps for all graduation plans can be found here (http://4yearplans.umd.edu). Select the College of your major to find the corresponding roadmap.

For more information on developing a graduation plan, please refer to the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog.

# ADVISING

Advising is available throughout the year in the Camille Kendall Academic Center, Suite 5119. Students should check Testudo (http://testudo.umd.edu) for their registration date and for any mandatory advising blocks.

# OPPORTUNITIES

## Undergraduate Research Experiences

Research experiences include assisting on faculty research projects, and participating in special team research projects.

## Fieldwork Opportunities

To further enhance learning and career training, the department incorporates special hands-on classes such as Health Communication Campaigns, Visual Communication, and Web Design. The department also strongly promotes internship and service learning opportunities with local and state businesses and institutions, and encourages students' participation in student-run clubs.

## Internships

The department's internship program helps communication majors gain professional experience, build a professional portfolio, and take the first steps toward a career. The department structures its internship program around a course, COMM386: Experiential Learning, offered each school term.

## Student Societies and Professional Organizations

Social and academic activities are available to students by participating in the following student organizations: the Undergraduate Communication Association and the Lambda Pi Eta Honor Society.

## Scholarships and Financial Assistance

The department offers the Chaim and Miriam Bentzlovitch Scholarship to students who exhibit academic excellence. Each year the department distributes a call for applications through email.

# Fermentation Science Major at Shady Grove

**The Universities at Shady Grove**

9631 Gudelsky Drive
Rockville, MD 20850

**Program Directors:** Diana Cochran, Ph.D. and Behrouz Meyssami, Ph.D.

In addition to providing competencies for several areas of work, the fermentation science major is designed specifically for certain professional industrial careers including the fermented food, alcoholic beverage and pharmaceutical products.

The Fermentation Science major is concerned with the application of the fundamental principles of the physical, biological, and behavioral sciences and processing to understand the complex and heterogeneous materials recognized as the raw precursors or/and final food products and beverages of fermentation. The fermentation science major prepares students for careers not only in traditional food and alcoholic beverage industries but also the biotechnology fermentation industry for pharmaceutical and nutraceutical production.

# Program Learning Outcomes

1. Careers and opportunities in fermentation science - Graduates of fermentation science undergraduate program will be well prepared for at least four career options in beverage (beer, wine, distilled spirits and kombucha), vegetable foods (kimchi, tempeh and miso), dairy foods (cheese and yogurt) and biotechnology industries (biofuels, pharmaceuticals and nutraceuticals) based upon their UMD fermentation science training, experience and interests.
2. Fermentation science - Graduates of the undergraduate program will be able to apply fermentation science knowledge and research to enhance fermentation process, propagation and modification of fermentation microbes, fermenter design and downstream processing including effluent treatment. Students will demonstrate mastery of the manufacturing steps involved in various fermented products and gain hands-on experience in making these products at pilot scale and evaluate their quality and safety.
3. Fermented food, feed and pharmaceuticals - Graduates of the fermentation science program will be able to correctly apply their knowledge in the use of prokaryotic and eukaryotic microorganisms in the fermentation of dairy, vegetables and fruits, meat, and grains (food), feed, and pharmaceuticals. Students will be able to describe fermenter design and scale-up, fermentation byproducts and downstream processing, and different types of fermentations.
4. Fermentation science literacy - Graduates of the program will be able to select, understand, and critically evaluate scientific studies in fermentation science disciplines such that they employ research that is applicable, timely, accurate, and useful for their fermentation production and management needs.
5. Knowledge of major issues in fermentation science - Graduates of the program will be well-versed in the issues related to fermentation science such that they contribute to societal debates around the future of farming, the use of microbes and phages in fermentation, sustainability of our fermentation industry, the worker needs, and scaling fermentation enterprises up and down to meet our growing population's fermented product needs.

# REQUIREMENTS

Students enrolled in Fermentation Science Major are required to earn a grade of "C-" or better in courses applied toward satisfaction of the major. This includes all the required and elective courses.

Curriculum for the Fermentation Science Major

| Course | Title | Credits |
|---|---|---|
| BSCI170 | Principles of Molecular & Cellular Biology | 3 |
| BSCI171 | Principles of Molecular & Cellular Biology Laboratory | 1 |
| BSCI223 | General Microbiology | 4 |
| CHEM131 | Chemistry I - Fundamentals of General Chemistry | 3 |
| CHEM132 | General Chemistry I Laboratory | 1 |
| CHEM231 | Organic Chemistry I | 3 |
| CHEM232 | Organic Chemistry Laboratory I | 1 |
| CHEM241 | Organic Chemistry II | 3 |
| CHEM242 | Organic Chemistry Laboratory II | 1 |
| CHEM271 | General Chemistry and Energetics | 2 |
| CHEM272 | General Bioanalytical Chemistry Laboratory | 2 |
| ENGL101 | Academic Writing | 3 |
| ENGL393 | Technical Writing [1] | 3 |
| MATH120 | Elementary Calculus I | 3 |
| NFSC112 | Food: Science and Technology | 3 |
| BCHM463 | Biochemistry of Physiology | 3 |
| NFSC398 | Seminar | 1 |
| NFSC421 | Food Chemistry | 3 |
| NFSC423 | Food Chemistry Laboratory | 3 |
| NFSC430 | Food Microbiology | 3 |
| NFSC431 | Food Quality Control | 4 |
| PLSC110 | Introduction to Horticulture | 3 |
| or PLSC112 | Introductory Crop Science | |
| PLSC130 | Did Yeast Create Civilization? | 3 |
| AGST3XX | (Viticulture and Enology) | 4 |
| AGST3XX | (Brewing and Distilling) | 4 |
| NFSC412 | Food Processing Technology | 4 |
| NFSC2XX | (Fermented Food, Feed, and Pharmaceuticals) | 3 |
| NFSC4XX | (Fermentation Science Laboratory) | 4 |
| NFSC4XX | (Cheese and Fermented Dairy Products) | 3 |
| NFSC386 | Experiential Learning | 3-6 |
| NFSC4XX | (Sensory Analysis Lab) | 3 |
| **Total Credits** | | **87-90** |

Total Credits for Degree: 120

| Course | Title | Credits |
|---|---|---|
| **The following courses are suggested electives:** | | |
| AREC250 | Elements of Agricultural and Resource Economics | |
| BMGT110 | Introduction to the Business Value Chain | |
| BMGT220 | Principles of Accounting I | |
| BMGT360 | Strategic Management of Human Capital | |
| BMGT364 | Managing People and Organizations [1] | |
| COMM200 | Critical Thinking and Speaking [1] | |
| INAG103 | Agricultural Marketing | |
| INAG204 | Agricultural Business Management | |
| INAG206 | Agricultural Business Law | |
| NFSC100 | Elements of Nutrition | |
| NFSC422 | Food Product Research and Development | |
| NFSC434 | Food Microbiology Laboratory | |

| | |
|---|---|
| ANSC410 | The Gut Microbiome and its Roles in Health and Disease |
| NFSC450 | Food and Nutrient Analysis |
| NFSC498 | Selected Topics |
| AGST333 | Crafty Beverage Crops |

[1] High-demand course. For non-major students, these seats are assigned as "first-come, first-served". Students are encouraged to register as early as possible for a seat in these courses.

# Public Health Science Major at Shady Grove

**The Universities at Shady Grove**
University of Maryland
Public Health Science Program
9636 Gudelsky Drive
Building III
Rockville, MD 20850
Phone: 301-738-6165
jhodgson@umd.edu
Shady Grove: http://go.umd.edu/phsc-sg (https://sph.umd.edu/undergraduate-degrees/bs-public-health-science-shady-grove/)

**Director:** Jennifer Hodgson, Ed.D., MPH

The Public Health Science program includes a strong curriculum in science and public health courses, such as biostatistics, epidemiology, environmental health, and health policy. Students will have the opportunity for individual exploration in public health through electives, laboratory experiences, optional internships, and a culminating interdisciplinary capstone course. As a collaborative degree involving multiple scholarly disciplines, courses offered by this program may be found under the following acronyms: PHSC, SPHL, HLTH, KNES, EPIB, MIEH and HLSA.

The degree effectively prepares students to pursue exciting careers in allied health, medical, and public health fields as well as post-baccalaureate professional and academic degrees.

The degree is offered at both the College Park and Shady Grove campuses.

## Program Objectives

The Public Health Science Bachelor of Science degree is an interdisciplinary program designed to provide students with the educational foundation required to effectively address local, national and global issues within the public health arena.

## Program Learning Outcomes

1. Discuss the history and philosophy of public health as well as its core values, concepts, and functions across the globe and in society.
2. Use basic public health concepts, methods, and tools for data collection and analysis.
3. Identify the major health-related needs and concerns of populations and formulate basic processes, approaches, and interventions as possible solutions.
4. Describe the underlying science of human health and disease including opportunities for promoting and protecting health across the lifespan.
5. Examine the socio-economic, behavioral, biological, environmental, and other factors that impact human health and contribute to health disparities.
6. Demonstrate the fundamental concepts and features of project implementation, including planning, assessment, and evaluation.
7. Compare and contrast the fundamental characteristics and organizational structures of the health systems of the United States and other countries.
8. Characterize the basic concepts of legal, ethical, economic, and regulatory dimensions of health care and public policy.
9. Illustrate the basic concepts of public health-specific writing and communication.
10. Interpret and synthesize scientific knowledge to propose evidence-based approaches and solutions to public health problems.
11. Critically analyze the impact racism has on public health and reflect on what it means to be anti-racist.

## REQUIREMENTS

For full details of degree requirements, please view the Shady Grove curriculum online at: http://sph.umd.edu/department/phssg/shady-grove-curriculum (http://sph.umd.edu/department/phssg/shady-grove-curriculum/).

In order to graduate with a Bachelor of Science degree in Public Health Science, students must complete 120 credits, 74 of which are specific to the Public Health Science degree. Students must earn a minimum grade of C- or higher in all Public Health Science major-required coursework.

| Course | Title | Credits |
|---|---|---|
| **Scientific Foundation Courses** | | |
| MATH120 | Elementary Calculus I | 3 |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | 4 |
| BSCI201 | Human Anatomy and Physiology I | 4 |
| BSCI202 | Human Anatomy and Physiology II | 4 |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | 4 |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | 4 |
| BSCI222 | Principles of Genetics | 4 |
| BSCI223 | General Microbiology | 4 |
| **Public Health Science Foundation Courses** | | |
| HLTH366 | Behavioral and Community Issues in Public Health | 3 |
| PHSC300 | Foundations of Public Health | 3 |
| EPIB301 | Epidemiology for Public Health Practice | 3 |
| EPIB315 | Biostatistics for Public Health Practice | 3 |
| HLSA300 | Introduction to Health Policy and Services | 3 |
| MIEH300 | A Public Health Perspective: Introduction to Environmental Health | 3 |
| PHSC450 | Addressing Social and Structural Inequities Through Public Health (Interdisciplinary Applications of Public Health) | 3 |

| | | |
|---|---|---|
| KNES320 | Physiological Basis of Physical Activity and Human Health | 4 |
| PHSC415 | Essentials of Public Health Biology: The Cell, The Individual, and Disease | 3 |
| PHSC497 | Public Health Science Capstone | 3 |
| **Public Health Science Options Courses** [1] | | **12** |
| **Total Credits** | | **74** |

[1] The Public Health Science option courses build upon the Scientific and Public Health Science Foundation courses. The option courses are 300 and 400 level courses primarily offered within the School of Public Health. By choosing from these courses, students have an opportunity to customize their program. Students are encouraged to choose courses that best align with a particular career goal. Please visit the PHSC website for the current list of approved options: https://sph.umd.edu/department/phs/college-park-curriculum-post-spring-2018 (https://sph.umd.edu/department/phs/college-park-curriculum-post-spring-2018/)

# GRADUATION PLANS

Click here (http://sph.umd.edu/content/four-year-plans/) for roadmaps for graduation plans in the School of Public Health.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# ADVISING

Major academic advising is mandatory for Public Health Science students at Shady Grove each semester. Academic advising is by appointment only and can be scheduled on our website (https://sph.umd.edu/academics/departments-units/public-health-science/shady-grove-public-health-science/advising-public-health-science-shady-grove/).

# The Robert H. Smith School of Business at Shady Grove

**The Universities at Shady Grove**
9630 Gudelsky Drive
Building II, Suite 2202
Rockville, MD 20850
Phone: 301-738-6079
http://rhsmith.umd.edu/programs/undergraduate/shady-grove/

**Director of Programs at Shady Grove:** Luke Glasgow

The Robert H. Smith School of Business is an internationally recognized leader in management education and research for the digital economy. The faculty are scholars, teachers, and professional leaders with a commitment to superior education in business and management, specializing in accounting, finance, information systems, operations management, management and organization, marketing, logistics, transportation and supply chain management. The Smith School is accredited by AACSB International - The Association to Advance Collegiate Schools of Business, the premier accrediting agency for bachelor's, master's and doctoral degree programs in business administration and accounting, http://aacsb.edu.

The Smith School of Business offers students the opportunity to complete the junior-senior curriculum in three majors at the Shady Grove campus in Rockville, MD including:

1. Accounting;
2. Management; and
3. Marketing.

For details on the majors offered at Shady Grove visit http://rhsmith.umd.edu/programs/undergraduate/shady-grove/.

## Admission Requirements

All students applying for admission to the Robert H. Smith School of Business as transfer students, whether internal transfers already enrolled at UMD or external transfer students entering the university for the first time, will be subject to competitive admission for a limited number of spaces in the Smith School at either the College Park or Shady Grove location. For complete details on admission to the Smith School at Shady Grove visit http://rhsmith.umd.edu/programs/undergraduate/shady-grove/.

## Statement of Policy on Transfer of Credit from Community Colleges

It is the practice of the Smith School of Business to consider for transfer from a regionally accredited community college only the following courses in business administration: an introductory business course, business statistics, or elementary accounting. Thus, it is anticipated that students transferring from another regionally accredited institution to Shady Grove will have devoted the major share of their academic effort below the junior year to the completion of basic requirements in the liberal arts. A total of 60 semester hours from a community college may be applied toward a degree from the Smith School of Business.

## Other Institutions

The Smith School of Business normally accepts transfer credits from regionally accredited four-year institutions. Junior- and senior-level business courses are accepted from colleges accredited by the Association to Advance Collegiate Schools of Business (AACSB). Junior- and senior- level business courses from other than AACSB-accredited schools are evaluated on a course-by-course basis to determine transferability.

The Smith School of Business requires that at least 50 percent of the business and management credit hours required for a business degree be earned at the University of Maryland, College Park.

## Additional Information

For more information on the Smith School of Business undergraduate program at Shady Grove visit http://rhsmith.umd.edu/programs/undergraduate/shady-grove/.

# PROGRAMS

## Majors

- Accounting Major at Shady Grove (p. 507)
- Management Major at Shady Grove (p. 509)
- Marketing Major at Shady Grove (p. 510)

# COLLEGE REQUIREMENTS

## Undergraduate Degree Requirements/ Degree Options

Upon completion of all degree requirements, students at the Smith School at Shady Grove will earn a Bachelor of Science (B.S.) degree from the Robert H. Smith School of Business at the University of Maryland, College Park. In addition, the Smith School of Business awards Master of Business Administration (M.B.A.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). Information concerning admission to the M.B.A. or M.S. program is available at http://rhsmith.umd.edu.

## Summary of Bachelor of Science Degree Requirements (All Curricula)

At least 45 hours of the 120 semester hours of academic work required for graduation must be in business and management subjects. A minimum of 58 hours of the required 120 hours must be in 300- or 400-level courses. Fifty percent of the required BMGT credit hours must be completed at the Smith School of Business (College Park or Shady Grove campus). A "C-" or higher is required in all Smith School required courses, and students must have an overall combined 2.000 GPA in Smith required courses. In addition, students are required to have an overall cumulative grade point average of 2.000 (C average) in all university course work.

| Course | Title | Credits |
|---|---|---|
| **Freshman-Sophomore School Requirements** | | |
| BMGT110 | Introduction to the Business Value Chain [1] | 3 |
| BMGT220 | Principles of Accounting I | 3 |
| BMGT221 | Principles of Accounting II | 3 |
| ECON200 | Principles of Microeconomics | 3 |
| ECON201 | Principles of Macroeconomics | 3 |
| Select one of the following: | | 3-4 |
| MATH120 | Elementary Calculus I | |
| MATH130 | Calculus I for the Life Sciences | |
| MATH140 | Calculus I | |
| Select one of the following: | | 3 |
| BMGT230 | Business Statistics [2] | |
| BMGT231 | [3] | |
| Select one of the following: [4] | | 3 |
| COMM100 | | |
| COMM107 | Oral Communication: Principles and Practices | |
| COMM200 | Critical Thinking and Speaking | |
| **Junior-Senior School Requirements** | | |
| BMGT301 | Introduction to Information Systems | 3 |
| BMGT340 | Business Finance | 3 |
| BMGT350 | Marketing Principles and Organization | 3 |
| BMGT364 | Managing People and Organizations | 3 |
| BMGT367 | Career Search Strategies in Business | 1 |
| BMGT380 | Business Law I | 3 |
| BMGT495 | Strategic Management | 3 |
| **Economic Requirements** | | |
| Select 0-3 credits [5] | | 0-3 |
| **Major Requirements** | | |
| Select 18-24 credits [6] | | 18-24 |
| **Total Credits** | | **61-71** |

1. BMGT110 provides a useful introduction to business as an academic program and exposes students to potential career opportunities. As a result, this course best serves students early in their college careers. However, this particular course is redundant for students who have already begun their upper level BMGT coursework and thus, have already received more in-depth exposure to business functions. Therefore this course is only required for students who enter the Smith School as freshmen. Students who transfer to the Smith School and have not completed BMGT110 will not be required to complete this course for graduation.
2. The following courses are approved substitutes for BMGT230: BIOM301, CCJS200, ECON230, ECON321, EDMS451, GEOG305, INST and SOCY201.
3. The following courses are approved substitutes for BMGT231: BIOE372, ENEE324, ENME392, or STAT400.
4. Any course that fulfills the university's Oral Communication General Education requirement will also satisfy the Smith School's public speaking requirement.
5. 0-3 credits of approved upper-level economics courses are required by the Smith School of Business. Visit https://www.rhsmith.umd.edu/programs/undergraduate/shady-grove (https://www.rhsmith.umd.edu/programs/undergraduate/shady-grove/) to view the specific requirements for each major offered at the Smith School at Shady Grove.
6. In addition to the Smith School of Business Bachelor of Science requirements listed above, generally another 18-24 credits are required for each major. See https://www.rhsmith.umd.edu/programs/undergraduate/shady-grove (https://www.rhsmith.umd.edu/programs/undergraduate/shady-grove/) to view the specific requirements for each major offered at the Smith School at Shady Grove.

# Accounting Major at Shady Grove

**Director of Programs at Shady Grove:** Luke Glasgow

Go here (https://www.rhsmith.umd.edu/programs/undergraduate/shady-grove/) for more information about the Robert H. Smith School of Business's undergraduate program at the Shady Grove campus in Montgomery County, Maryland.

Accounting, in a limited sense, is the analysis, classification, and recording of financial events and the reporting of the results of such events for an organization. In a broader sense, accounting consists of all financial systems for planning, controlling, and appraising performance of an organization. Accounting includes among its many facets: financial planning, budgeting, accounting systems, financial management controls, financial analysis of performance, financial reporting, internal and external auditing, and taxation. The accounting curriculum provides an educational foundation for careers in public accounting and management, whether in private business organizations, government or nonprofit agencies, or consulting. Two tracks are provided: The Public Accounting Track leading to the CPA (Certified Public Accounting) and

the Business and Accounting Advisory Track for students who are pursuing careers in business and accounting that do not require the student to be CPA Exam eligible.

# Program Learning Outcomes

1. Apply elements of critical thinking.
2. Identify common situations in chosen career that could result in ethical dilemma.
3. Analyze ethical scenarios and apply frameworks to develop solutions.
4. Foster and sustain team environments that are inclusive of ideas from all contributing members.
5. Apply leadership skills to motivate and coordinate with other to achieve goals.
6. Write professional-grade business documents.
7. Develop and deliver effective oral presentations.
8. Identify and use appropriate quantitative tools and techniques.
9. Use software applications to analyze and solve problems.
10. Explain how functional areas interact and drive one another.
11. Prepare a multiple-step income statement from a trial balance and supporting documentation.
12. Understand the impact of audit objectives and risk of material misstatement in planning an audit.
13. Define audit engagement procedures and where each procedure is used appropriately.
14. Identify the factors that an auditor should consider in order to determine the correct format and contents of an audit opinion.

# REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 294) | | |
| **All Accounting Majors** | | |
| BMGT310 | Intermediate Accounting I | 3 |
| BMGT321 | Managerial Accounting | 3 |
| BMGT326 | Accounting Systems | 3 |
| Select one of the following tracks: | | 9-15 |
| Public Accounting Track | | |
| Business and Accounting Advisory Track | | |
| **Total Credits** | | **18-24** |

# Tracks

## Public Accounting Track

| Course | Title | Credits |
|---|---|---|
| BMGT311 | Intermediate Accounting II | 3 |
| BMGT323 | Taxation of Individuals [1] | 3 |
| BMGT411 | Ethics and Professionalism in Accounting [1] | 3 |
| BMGT422 | Auditing Theory and Practice [1] | 3 |
| Select one of the following: | | 3 |
| BMGT313 | Financial Statement Analysis | |
| BMGT410 | Government Accounting | |
| BMGT417 | Taxation of Corporations, Partnerships and Estates | |
| BMGT423 | Fraud Examination | |
| BMGT424 | Advanced Accounting | |
| BMGT428 | Special Topics in Accounting | |
| **Total Credits** | | **15** |

[1] Required for CPA in Maryland

## Business and Accounting Advisory Track

| Course | Title | Credits |
|---|---|---|
| Select two of the following: | | 9 |
| BMGT311 | Intermediate Accounting II | |
| BMGT313 | Financial Statement Analysis | |
| BMGT323 | Taxation of Individuals [1] | |
| BMGT410 | Government Accounting | |
| BMGT411 | Ethics and Professionalism in Accounting [1] | |
| BMGT417 | Taxation of Corporations, Partnerships and Estates | |
| BMGT422 | Auditing Theory and Practice | |
| BMGT423 | Fraud Examination | |
| BMGT424 | Advanced Accounting | |
| BMGT428 | Special Topics in Accounting | |
| Select one of the following: | | 3 |
| BMGT362 | Negotiations | |
| BMGT372 | Introduction to Logistics and Supply Chain Management | |
| BMGT385 | Operations Management | |
| BMGT392 | Introduction to International Business Management | |
| BMGT402 | Database Systems | |
| BMGT440 | Advanced Financial Management | |
| BMGT454 | Global Marketing | |
| BMGT461 | Entrepreneurship | |
| Or one of the following accounting courses not selected above: | | |
| BMGT311 | Intermediate Accounting II | |
| BMGT323 | Taxation of Individuals | |
| BMGT410 | Government Accounting | |
| BMGT411 | Ethics and Professionalism in Accounting | |
| BMGT417 | Taxation of Corporations, Partnerships and Estates | |
| BMGT422 | Auditing Theory and Practice | |
| BMGT423 | Fraud Examination | |
| BMGT424 | Advanced Accounting | |
| BMGT428 | Special Topics in Accounting | |
| **Total Credits** | | **12** |

In addition to the major requirements listed above, please consult the list of College Requirements (p. 294) or www.rhsmith.umd.edu (http://www.rhsmith.umd.edu) for a listing of additional Smith School degree requirements that apply to all Smith School majors.

The basic educational requirements of the Maryland State Board of Public Accountancy to sit for the CPA examination are a baccalaureate or higher degree with a major in Accounting or with a non-accounting degree supplemented by course work the Board determines to be substantially the equivalent of an Accounting major. Students planning to take the CPA examination for certification and licensing outside Maryland should determine the educational requirements for that state and arrange their program accordingly.

120 credits are required to complete a degree in Accounting; however, students seeking to become a Certified Public Accountant (CPA) must meet the certification requirements for the state in which they wish to practice. Most states, including Maryland, require a minimum of 150 credit hours of college education to fulfill the education requirements to obtain a CPA license. However many of these states, including Maryland, will allow applicants to take the CPA exam prior to earning 150 credits if they have accumulated 120 credits, earned a degree, and meet specified education requirements. In addition, do not assume the course and credit requirements for the accounting major are sufficient for all states. For details on various states' CPA requirements visit www.nasba.org (http://www.nasba.org).

## GRADUATION PLANS

Click here (https://www.rhsmith.umd.edu/programs/undergraduate/academics/academic-majors/) for roadmaps for graduation plans in the Robert H. Smith School of Business.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Management Major at Shady Grove

**Assistant Dean for Civic Engagement:** Henry C. Boyd III, Ph.D.
**Director of Programs at Shady Grove:** Luke Glasgow

Go here (https://www.rhsmith.umd.edu/programs/undergraduate/shady-grove/) for more information about the Robert H. Smith School of Business's undergraduate program at the Shady Grove campus in Montgomery County, Maryland.

The Robert H. Smith School of Business has long been recognized as a leading undergraduate program in management and entrepreneurship. Both these programs regularly appear highly ranked in a variety of publications. The management major focuses on leadership and entrepreneurship to engage students in critical thinking and problem solving applicable in many careers.

The core of the management major offers two courses in leadership and negotiations. These core courses emphasize skills students need in a changing employment environment. As more jobs become automated, managing people and solving tough problems will become increasingly important to attaining meaningful employment. The core classes in the management major provide education in problem solving, leadership, and effective teamwork. The demanding and fast-paced careers of the future will require students to demonstrate a strong ability to communicate and solve problems in a team under extreme pressure. The core major classes prepare students for careers in areas such as strategy, information technology, operations, healthcare administration, and organizational transformation.

There are a number of potential career paths stemming from the management major, such as consulting analyst, financial advisor, human resource management, nonprofit management, rotational leadership programs, and entrepreneur, including social entrepreneurship. These are grouped into two major areas of focus, leadership & innovation and entrepreneurship. Both areas focus on critical thinking and problem solving, and allow students to create a major tailored to their future goals.

The Management & Organization department has relationships with a number of centers of excellence, including the Dignman Center for Entrepreneurship and the Center for Leadership, Innovation and Change which provide relationships with professors, researchers, and organizations for students interested in enhancing their course of study with co-curriculuar opportunities.

## Program Learning Outcomes

1. Apply elements of critical thinking.
2. Identify common situations in chosen career that could result in ethical dilemma.
3. Analyze ethical scenarios and apply frameworks to develop solutions.
4. Foster and sustain team environments that are inclusive of ideas from all contributing members.
5. Apply leadership skills to motivate and coordinate with other to achieve goals.
6. Write professional-grade business documents.
7. Develop and deliver effective oral presentations.
8. Identify and use appropriate quantitative tools and techniques.
9. Use software applications to analyze and solve problems.
10. Explain how functional areas interact and drive one another.
11. Develop and implement a concrete, relevant, and practical action plan based on a set of leadership approaches and skills selected best for a given management problem.
12. Identify key strengths and weaknesses of students' leadership skills and abilities based on the assessment data and self-reflection.
13. Apply negotiation concepts to prepare for and execute an actual negotiation based on strategic and tactical choices made best for a given situation.
14. Identify key strengths and weaknesses of students' negotiation skills and styles based on the assessment data and self-reflection.

## REQUIREMENTS

Course requirements for the junior-senior curriculum concentration of the Management major are as follows:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 294) | | |
| BMGT363 | Leadership and Teamwork in Organizations | 3 |
| BMGT362 | Negotiations | 3 |
| Select four of the following: | | 12 |
| BMGT360 | Strategic Management of Human Capital | |
| BMGT366 | Growth Strategies for Emerging Companies | |
| BMGT461 | Entrepreneurship | |
| BMGT463 | Cross-cultural Challenges in Business | |
| BMGT466 | Global Business Strategy | |
| BMGT468 | Special Topics in Management and Organization [1] | |
| BMGT469 | Management and Organization Short-term Study Abroad [1] | |
| **Total Credits** | | **18** |

[1] A maximum combined total of 6 credits of BMGT468 and BMGT469 coursework can satisfy Management major requirements.

Click here (https://www.rhsmith.umd.edu/programs/undergraduate/shady-grove/) for more information about the Robert H. Smith School

of Business's undergraduate program at the Shady Grove campus in Montgomery County, Maryland.

## GRADUATION PLANS

Click here (https://www.rhsmith.umd.edu/programs/undergraduate/academics/academic-majors/) for roadmaps for graduation plans in the Robert H. Smith School of Business.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Marketing Major at Shady Grove

**Assistant Dean for Civic Engagement:** Henry C. Boyd III, Ph.D.
**Director of Programs at Shady Grove:** Luke Glasgow

Go here (https://www.rhsmith.umd.edu/programs/undergraduate/shady-grove/) for more information about the Robert H. Smith School of Business's undergraduate program at the Shady Grove campus in Montgomery County, Maryland.

The goal of marketing is to satisfy all the stakeholders of the firm - employees, dealers, stockholders, and customers - by seeing that quality goods and services are developed and provided at fair prices and in a way that benefits the community and society. World-class competition has forced businesses to develop marketing programs that are as good as the best. This means getting closer to the customer, joining other organizations to create value for the consumer, and designing integrated distribution and communication programs that provide a seamless flow from producers to consumers. Pricing, communication/promotion, product/service, and distribution activities inherent in the development of marketing programs are applicable to non-profit organizations, business-to-business organizations, and firms that sell to ultimate consumers.

Many types of careers are available to the marketing major. These include, but are not limited to: sales, advertising, retailing, product/service management, and marketing research. Because of the many different employment opportunities in marketing, many marketing electives are offered along with three core courses required of all marketing majors - consumer analysis, marketing research, and marketing strategy.

## Program Learning Outcomes

1. Apply elements of critical thinking.
2. Identify common situations in chosen career that could result in ethical dilemma.
3. Analyze ethical scenarios and apply frameworks to develop solutions.
4. Foster and sustain team environments that are inclusive of ideas from all contributing members.
5. Apply leadership skills to motivate and coordinate with other to achieve goals.
6. Write professional-grade business documents.
7. Develop and deliver effective oral presentations.
8. Identify and use appropriate quantitative tools and techniques.
9. Use software applications to analyze and solve problems.
10. Explain how functional areas interact and drive one another.
11. Apply consumer behavior concepts to solve real world issues in marketing.
12. Analyze survey data using appropriate tools and techniques and apply findings to resolve marketing issues.
13. Formulate STP plans and apply the proper alignment of 4Ps of marketing to solve real world problems in business.

## REQUIREMENTS

Course requirements for the junior-senior curriculum concentration in Marketing are as follows:

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 294) | | |
| BMGT354 | Consumer Analysis | 3 |
| BMGT351 | Marketing Research Methods | 3 |
| BMGT457 | Marketing Policies and Strategies | 3 |
| Select three of the following: | | 9 |
| BMGT456 | Customer-Centric Innovation | |
| BMGT453 | Retail Management | |
| BMGT357 | Marketing Internship | |
| BMGT372 | Introduction to Logistics and Supply Chain Management | |
| BMGT450 | Integrated Marketing Communications | |
| BMGT454 | Global Marketing | |
| BMGT455 | Sales Management | |
| BMGT458 | Special Topics in Marketing (maximum of 6 credits if content differs) | |
| BMGT484 | Digital Marketing | |
| **Upper Level Economics Requirements** | | |
| Select one of the following: | | 3-4 |
| ECON305 | Intermediate Macroeconomic Theory and Policy | |
| ECON306 | Intermediate Microeconomic Theory & Policy | |
| ECON330 | Money and Banking | |
| ECON340 | International Economics | |
| **Total Credits** | | **21-22** |

Note: Students who have completed ECON325 and ECON326 can substitute these courses for ECON305 and ECON306 respectively.

In addition to the major requirements listed above, please consult "Colleges and Schools" on this site or www.rhsmith.umd.edu (http://www.rhsmith.umd.edu) for a listing of additional Smith School degree requirements that apply to all Smith School majors.

Click here (https://www.rhsmith.umd.edu/programs/undergraduate/shady-grove/) for more information about the Robert H. Smith School of Business's undergraduate program at the Shady Grove campus in Montgomery County, Maryland.

## GRADUATION PLANS

Click here (https://www.rhsmith.umd.edu/programs/undergraduate/academics/academic-majors/) for roadmaps for graduation plans in the Robert H. Smith School of Business.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (p. 66) section of this catalog

# Office of Undergraduate Studies

2110 Marie Mount Hall
Phone: 301-405-9363
ugst@umd.edu
http://ugst.umd.edu

**Associate Provost and Dean:** William A. Cohen, Ph.D.

Through its many programs, the Office of Undergraduate Studies serves all undergraduate students at the university, and the faculty and staff that support the undergraduate mission of the campus. The Office of Undergraduate Studies is the primary division at the University of Maryland responsible for leadership and oversight of undergraduate curricular and co-curricular education. The responsibilities of Undergraduate Studies include:

- Academic advising policy and assessment
- Academic enrichment programs
- Academic planning and policy
- Enrollment management
- General Education
- Interdisciplinary and individual studies programs
- Living-learning programs
- University learning outcomes assessment

## PROGRAMS

Programs housed in the Office of Undergraduate Studies:

- Academic Achievement Programs (p. 35)
- Academic Common Market (p. 512)
- Air Force Reserve Officer Training Corps (AFROTC) (p. 513)
- Army Reserve Office Training Corps (ROTC) (p. 513)
- Asian American Studies Program (AAST) (p. 522)
- Carillon Communities (p. 514)
- C.D. Mote Jr. Incentive Awards Program (p. 515)
- College Park Scholars Program (p. 515)
- Federal Fellows Program (p. 515)
- First Year Book Program (p. 516)
- General Education (p. 88)
- Global Fellows in Washington, DC Program (p. 516)
- Global Studies (p. 516)
- Honors College (p. 517)
- Individual Studies Program (IVSP) (p. 517)
- Letters and Sciences (p. 40)
- Maryland Center for Undergraduate Research (MCUR) (https://academiccatalog.umd.edu/undergraduate/campus-administration-resources-student-services/academic-resources-services/maryland-center-undergraduate-research/)
- Maryland Fellows Program (p. 518)
- National Scholarships Office (p. 520)
- Naval Reserve Officer Training Corps Program (Naval ROTC) (p. 518)
- Office of Student Orientation and Transition (https://orientation.umd.edu/)
- Pre-College Programs (p. 44)
- Pre-Transfer Advising (p. 48)
- Southern Management Leadership Program (SMLP) (p. 520)
- Student Success Office (p. 48)

# Academic Common Market

2110 Marie Mount Hall
Phone: 301-405-9363
http://ugst.umd.edu/acmnotice.pdf

## Special Notice

**August 23, 2012**
**(Updated April 12, 2014)**

**The University of Maryland, College Park has discontinued participation in the Academic Common Market.**

**The last ACM certifications the University of Maryland, College Park accepted were those specifying spring 2013 as the first term of enrollment in the certified major. The University of Maryland, College Park will not accept ACM certifications for later semesters. Only students with ACM certifications for spring 2013 or earlier semesters and who enroll in the certified program at UMD in their ACM certified semester may continue to receive the ACM in-state tuition benefit.**

### Transition Plans

#### Fall 2012 and Earlier

**Undergraduate students** approved for participation in an Academic Common Market (ACM) major and enrolled in their certified majors as of fall 2012 or earlier may continue to receive benefits as long as they are continuously enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 2.0 overall grade point average, and satisfactory progress toward the degree. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified major.

**Undergraduate students admitted for fall 2012 who deferred their admission to spring 2013 or fall 2013** will be treated according to the rules for undergraduate students admitted fall 2012. They must be approved for participation in an Academic Common Market (ACM) major and enrolled in their certified majors as of the semester to which they deferred. They may continue to receive benefits as long as they are continuously enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 2.0 overall grade point average, and satisfactory progress toward the degree. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified major.

Graduate students approved for participation in an Academic Common Market (ACM) major and enrolled in their certified majors as of fall 2012 or earlier may continue to receive benefits as long as they are continuously enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 3.0 overall grade point average, and satisfactory progress toward the graduate degree. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified program.

**Graduate students admitted for fall 2012 who deferred their admission to spring 2013 or fall 2013** will be treated according to the rules for graduate students admitted fall 2012. They must be approved for participation in an Academic Common Market (ACM) major and enrolled in their certified majors as of the semester to which they deferred. They may continue to receive benefits as long as they are continuously

enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 3.0 overall grade point average, and satisfactory progress toward the degree. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified major.

**Spring 2013**
**Undergraduate students**, who receive ACM certification for spring 2013 and who are admitted to and enrolled in their approved ACM inventory majors for spring 2013, may receive benefits as long as they are continuously enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 2.0 overall grade point average, and satisfactory progress toward the degree. Students may not pursue multiple degrees while receiving ACM benefits. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified major.

**Undergraduate students admitted for spring 2013 who deferred their admission to fall 2013 or spring 2014** will be treated according to the rules for undergraduate students admitted spring 2013. They must be approved for participation in an Academic Common Market (ACM) major and enrolled in their certified majors as of the semester to which they deferred. They may continue to receive benefits as long as they are continuously enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 2.0 overall grade point average, and satisfactory progress toward the degree. Students may not pursue multiple degrees while receiving ACM benefits. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified major.

**Graduate students**, who receive ACM certification for *spring 2013* and who are admitted to and enrolled in their approved ACM inventory majors for spring 2013, may receive benefits as long as they are continuously enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 3.0 overall grade point average, and satisfactory progress toward the graduate degree. Students may not pursue multiple degrees while receiving ACM benefits. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified program.

**Graduate students admitted for spring 2013 who deferred their admission to fall 2013 or spring 2014** will be treated according to the rules for undergraduate students admitted spring 2013. They must be approved for participation in an Academic Common Market (ACM) major and enrolled in their certified majors as of the semester to which they deferred. They may continue to receive benefits as long as they are continuously enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 3.0 overall grade point average, and satisfactory progress toward the degree. Students may not pursue multiple degrees while receiving ACM benefits. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified major.

# Air Force Reserve Officer Training Corps (AFROTC)

0121 Reckord Armory
Phone: 301-314-3242
afrotcdet330@umd.edu
http://afrotc.umd.edu

**Director:** Colonel Nathan Rabe

The Air Force Reserve Officer Training Corps (AFROTC) provides students the opportunity to earn a commission as a second lieutenant in the United States Air Force while completing their undergraduate degree. It is highly recommended that students seeking a commission contact the AFROTC department for full program details before registering for classes.

## Program Requirements

AFROTC is designed to be a 4-year experience, but the schedule can be compressed (minimum of 3 years) for highly qualified candidates. A full four-year program is composed of the two-year General Military Course (GMC) and the two-year Professional Officer Course (POC). Students wishing to pursue a military career must successfully meet all cadet standards each semester including a Leadership Laboratory (ARSC059) course and fitness regimen. Non-scholarship GMC students incur no military service obligation and may elect to discontinue the program at any time. After successfully completing the 2-year GMC portion of the program, cadets apply for positions as POC in a selection process. After a summer Field Training program, POC continue development of leadership skills and the study of United States defense policy. Additionally, POC students contract into the Department of the Air Force and begin receiving a monthly stipend.

## Scholarships and Incentives

In addition to detachment-specific scholarship opportunities, freshman and sophomore students may be eligible for the In-College Scholarship Program, Type 1 and Type 2. The program awards scholarships based on merit during two selection phases (fall and spring semesters). Scholarship recipients receive money for tuition up to $18,000 per year, a book allowance (currently $900/year), and a monthly allowance from $300 to $500, depending on the student's AFROTC year. Additionally, all junior students who are not already on scholarship will receive the General Charles McGee Leadership Award.

*Type 1:* Reserved for Commanders' In-College Scholarships (CICS) offered to cadets pursuing a technical major. It pays 100 percent tuition and authorized fees at any public or private institution with an Air Force ROTC detachment. Selectees also receive a monthly living expense stipend and an annual book stipend as outlined above.

*Type 2:* This is awarded to all cadets selected through the In-College Scholarship Program (ICSP) and pays up to $18,000 per year in college tuition at any public or private institution with an Air Force ROTC detachment. Scholarship payment is further capped at up to $9,000 per semester or up to $6,000 per quarter. Selectees also receive a monthly living expense stipend and an annual book stipend as outlined above.

*General Charles McGee Leadership Award (CMLA):* This in-college scholarship is awarded to all individuals not already on scholarship who receive an enrollment allocation and thus are selected to commission into the Air or Space Force; this scholarship starts at the beginning of a student's junior year. It pays $18,000 per year for two years and cannot be applied to graduate studies.

*Housing Benefit:* Any CMLA awardee will be allowed to convert their award for a $10K-per-academic-year "housing scholarship" used for on-campus housing. This is for room only; board is not included, and the conversion must begin at the start of the fall academic term if exercised.

# Army Reserve Officer Training Corps (ROTC)

2100 Reckord Armory

Phone: 301-314-9939
armyrotc@umd.edu
http://armyrotc.umd.edu

**Director:** Lieutenant Colonel Daniel Fass

The Army Reserve Officer Training Corps offers students the opportunity to develop leadership skills plus earn a commission as a Second Lieutenant in the United States Army (Active, Reserve, or National Guard) while completing their undergraduate or graduate degree.

## Four-Year Program

The four-year program is composed of the Basic Leadership Course and the Advanced Leadership Course. The first two years (Basic Course) consist of a general introduction to military customs and courtesy, soldier skills, communication skills, personal development, and introductory leadership skills. Students enrolled in the Basic Course *incur* ***no obligation*** and *may discontinue the program at any time.* In the final two years (Advanced Course), students concentrate on developing leadership skills in organizations. Students must have permission of the Director of Army ROTC to enroll in the advanced course. The Advanced Course requires four weeks of field training at Fort Knox, Kentucky (Advanced Camp) the summer after their junior year.

## Two-Year Program

The two-year program is available to students with two years remaining in their university studies. The academic requirements for this program are identical to the Advanced Course in the four-year program, and students are eligible to receive the same benefits. Prerequisites for the Advanced Course must be fulfilled prior to enrollment. The following options exist to help students fulfill Basic Course requirements before enrolling in the Advanced Course:

1. Basic Camp: Students may attend a five week adventure challenge course at Fort Knox, Kentucky. Students should start the application process for this option no later than January of their sophomore year.
2. Veterans: Students with prior military service.
3. Basic Training: Constructive credit will be awarded for students who have completed Basic Training prior to starting their junior year.
4. JROTC: Students who completed 3-4 years of JROTC in High School.
5. Service Academy or Senior ROTC: Two year attendance at a service academy or successful completion of two years in a sister service Senior ROTC training can qualify for constructive credit.

## Scholarships and Incentives

Army ROTC Scholarships are available for four, three or two years on a competitive basis. The scholarships are based solely on merit, not financial need. Scholarship awardees may apply benefits for either Room and Board or Tuition and Mandatory Fees. An additional book allowance ($1,200 a year) and a non-taxable monthly stipend of $420 is also given to contracted Cadets.

Army ROTC students/cadets may compete for summer training opportunities to include Airborne, Air Assault, Sapper School, Combat Diver Qualification, or Northern Warfare Training during the summer and winter breaks.

## Curriculum

**Freshman Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ARMY106 | 3 | ARMY105 | 3 |
| | **3** | | **3** |

**Sophomore Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ARMY201 | 3 | ARMY202 | 3 |
| | **3** | | **3** |

**Junior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ARMY301 | 3 | ARMY302 | 3 |
| | **3** | | **3** |

**Senior Year**

| First Semester | Credits | Second Semester | Credits |
|---|---|---|---|
| ARMY401 | 3 | ARMY402 | 3 |
| | **3** | | **3** |

**Total Credits 24**

***Basic Leadership Course***
***Advanced Leadership Course***
***Military***
***History***

Cadets must complete an approved course in Military History prior to graduation

All ROTC classes are *open to any student* for college credit, whether or not they are considered a cadet in the Army ROTC program. Students who complete the Advanced Course requirements (ARMY301,ARMY302,ARMY401,ARMY402 and Military History) may be conferred a Minor in Leadership Studies.

# Carillon Communities

2110 Marie Mount Hall
Phone: 301-314-9402
carillon@umd.edu
http://carillon.umd.edu

**Faculty Director:** Abigail McEwen
**Assistant Director:** Ben Beltran

Carillon Communities is a living-learning program in which first-year students leverage design thinking and teamwork to explore the Big Questions that matter to our world. Carillon students enroll in a faculty-led Community course, centered around current and global issues, and in a unique Studio course, developed in partnership with the Academy for Innovation and Entrepreneurship (https://innovation.umd.edu/). Carillon guides students through their first semester on campus, teaching them how to navigate ambiguity in their lives and centering their academic and personal well-being.

Carillon Communities is pleased to offer twelve communities in 2023-24:

- Art & Activism
- Design in Practice
- Freedom Fighting
- Free Speech

- Harvest
- Health Justice
- iGive
- Language
- Masculinities & Family Health
- Once & Future Planet
- Visualizing Knowledge
- Weather & Climate

# C.D. Mote Jr. Incentive Awards Program

1103 Cole Student Activities Building
incentiveawards@umd.edu
http://cdmincentiveawards.umd.edu

**Director:** Jacqueline W. Lee

The C. D. Mote, Jr. Incentive Awards Program offers full financial support to the University of Maryland to exceptional students who demonstrate academic ability, uncommon persistence and maturity in the face of challenging circumstances.

Directed toward graduates of Baltimore City, Charles County, Prince George's County and Montgomery County public high schools who demonstrate financial need, the award is more than a prestigious scholarship. At the heart of the Incentive Awards Program is the development of individual character and community responsibility within an intimate community of staff, peers, advisors and mentors.

The cohort of students who form the core of this community benefit from outstanding programming and, in return, are active in their home high schools and neighborhoods through peer advising, high school visits and other outreach programs, with the intention of inspiring young people to similar academic achievement.

# College Park Scholars Program

1125 Cumberland Hall
Phone: 301-314-2777
askcpscholars@umd.edu
http://scholars.umd.edu

**Executive Director:** Marilee Lindemann, Ph.D.

College Park Scholars is a nationally acclaimed living-learning program that offers academically talented students the interpersonal benefits of a small college paired with the intellectual advantages of a major research university. Each of its 13 programs is based on a theme that allows students to explore complex issues from an interdisciplinary perspective. Admission to the two-year program is selective and by invitation; students who successfully complete the program earn an academic citation.

In Scholars, students live together with others in their program, and they take one or two classes together each semester. Classwork includes hands-on learning opportunities and co-curricular experiences, such as program field trips and Scholars-wide activities. (Several program faculty also lead global learning experiences during the winter term or summer semester.) Finally, program faculty maintain offices in the Cambridge Community residence halls, where Scholars students live. This framework has been deliberately designed to provide students immediate access to a supportive community, close faculty connections, and opportunities to learn and grow that other students typically don't get until they're upperclassmen.

College Park Scholars consists of the following 13 programs:

- Arts (http://www.scholars.umd.edu/programs/arts/)
- Business, Society and the Economy (http://www.scholars.umd.edu/programs/bse/)
- Civic Engagement for Social Good (https://scholars.umd.edu/2024-25-programs/civic-engagement-social-good/)
- Environment, Technology and Economy (http://www.scholars.umd.edu/programs/ete/)
- Data Justice (https://scholars.umd.edu/2024-25-programs/data-justice/)
- Global Public Health (http://www.scholars.umd.edu/programs/gph/)
- International Studies (http://www.scholars.umd.edu/programs/is/)
- Justice and Legal Thought (http://www.scholars.umd.edu/programs/jlt/)
- Life Sciences (http://www.scholars.umd.edu/programs/ls/)
- Media, Self and Society (http://www.scholars.umd.edu/programs/mss/)
- Public Leadership (http://www.scholars.umd.edu/programs/pl/)
- Science and Global Change (http://www.scholars.umd.edu/programs/sgc/)
- Science, Technology and Society (http://www.scholars.umd.edu/programs/sts/)

# Federal Fellows Program

2407 Marie Mount Hall
Phone: 301-314-0689
fedglobal@umd.edu
http://federalfellows.umd.edu

**Director:** Joan Burton, Ph.D.

**The Federal Fellows Program** is a selective, yearlong program offered within the Office of Undergraduate Studies, in conjunction with other colleges, programs and campus initiatives. The program brings together students from all disciplines to learn, discuss, and explore issues related to federal policy, and galvanizes them toward public service careers. Rising sophomores, juniors, and seniors with strong academic backgrounds and an interest in exploring the possibility of public service are encouraged to apply.

Students who successfully complete all program requirements will earn a "Federal Fellows" notation on their transcript.

The Federal Fellows Program consists of three primary components:

1. The Federal Fellows Seminar (https://www.federalfellows.umd.edu/seminars.html): FGSM320, FGSM330, or FGSM340 (3 credits, fall semester). A choice of seminar courses, each focused on a specific theme (for example, public health policy, homeland and national security policy, or energy and environmental policy). The seminars benefit from the diversity of students who participate in the program. The small setting allows students to bring knowledge from their disciplinary focus into the discussion. Taught by expert practitioners, the seminars examine the policy-making process and discuss vital current issues within each theme. Guest speakers provide real-

world perspectives on how governments and other actors create and implement policy.

2. The Internship: FGSM398 (3-9 credits, spring semester). The Federal Fellows experiential learning course offers credit for an internship with a federal agency or related organization (including the White House, NGOs, etc.). In class, students work on professional development and reflect on their internship experiences through journal assignments. With permission, students may complete the internship under the course number for internships in the student's major or other programs.
3. Supporting course work: Two regular UM courses, approved by the Federal Fellows program, that complement the Federal Fellows mission (6 credits). With permission, students may apply courses completed prior to the Federal Fellows year.

Students also participate in Federal Fellows Program activities including visits to Capitol Hill and federal agencies, conversations with leaders in public policy, professional development workshops, one-on-one advising check-ins, and an end-of-the-year reception. The program offers a lively, engaged community of students and supportive alumni.

Students in the program must have completed 30 credits by the end of the semester in which they apply and have a grade point average of 3.0 or higher. For details and application please see http://federalfellows.umd.edu.

# First Year Book Program

2110 Marie Mount Hall
http://firstyearbook.umd.edu

**Assistant Dean:** Lisa Kiely, Ph.D.

Each year since 1993, the University has selected a book for all first year students. The goal of the First Year Book Program (FYB) is to provide a shared intellectual experience for all new students along with the opportunity to discuss the book from a variety of disciplines. Courses, departmental lectures, living/learning programs, and student groups all sponsor events that complement a major address by the author and/or other important visitors to campus.

# Global Fellows in Washington DC Program

2407 Marie Mount Hall
Phone: 301-314-0689
fedglobal@umd.edu
http://globalfellowsdc.umd.edu

**Director:** Joan Burton, Ph.D.

**The Global Fellows in Washington, D.C. Program** is an innovative internship program designed to equip undergraduate students of all majors with the knowledge, skills, and experience to become leaders in an increasingly globalized society. The aim is to increase student involvement in and access to opportunities within the global arena. The program combines a fall academic seminar on global leadership and policy related to a specific theme with a spring internship experience in the Washington, D.C. area. Classes bring students in contact with professionals who share their knowledge, expertise, and perspectives. The spring internship placements are with international organizations, federal agencies, foreign embassies, NGOs, and non-profit organizations. The program is designed to support students of all majors and colleges. Rising sophomores, juniors, and seniors with strong academic backgrounds and an interest in the global arena are encouraged to apply. The program offers a lively, engaged community of students and supportive alumni.

Global Fellows in Washington, D.C. is a program of the Office of Undergraduate Studies, in collaboration with the College of Behavioral and Social Sciences and the Office of International Affairs, and includes stakeholders and supporters across the University. We are excited to announce a new partnership, starting Fall 2019, with the Clark School of Engineering, the College of Agriculture & Natural Resources, and the School of Public Health.

Students who successfully complete all program requirements will earn a "Global" notation on their transcript.

The Global Fellows in Washington, D.C. Program consists of four primary components:

1. The Global Fellows in Washington, D.C. Seminar (https://www.globalfellowsdc.umd.edu/fallseminars.html): FGSM350, FGSM355, FGSM360, FGSM365, FGSM370, FGSM375, or FGSM390 (3 credits, fall semester). Students in the program choose from several seminar courses based in global leadership and policy and designed especially for program participants. The courses are taught by expert practitioners and provide a deep understanding of global leadership and policy related to a specific theme. Guest speakers offer additional real-world and professional perspectives.
2. The Internship: FGSM398 (3-9 credits, spring semester). The experiential internship course offered by the Global Fellows in Washington, D.C. Program enables students to earn credits for their professional experience in the global arena. Students registering for FGSM398 will provide signed confirmation of an internship position, submit guided journal entries, and complete a final reflective report on their internship experience. (Important note: Students may substitute another departmental internship course, offered in the student's major or elsewhere at the University, for FGSM398 in the Global Fellows in Washington, D.C. Program.)
3. Supporting course work: To round out the Global Fellows experience, two additional UMD courses, approved by the Global Fellows program, are required of students participating in the program. These courses complement the fall seminar and spring internship by providing greater depth and context to the academic experience (6 credits). With permission, courses completed prior to beginning the program may be used to satisfy this requirement.
4. Supplemental Activities: Throughout the year, students attend workshops and roundtable discussions and participate in off-campus activities, including visits to Capitol Hill and federal agencies, to learn more about real-world applications. Program staff offer one-on-one consultations regarding cover letters, resumes, and interviews.

Minimum requirements: Students in the program must have completed 30 credits by the end of the semester in which they apply and have a cumulative grade point average of 3.0 or higher. For further details and application see http://globalfellowsdc.umd.edu.

# Global Studies

The Global Studies Minor Program provides opportunities for students from any discipline or major to study how evolving global connections affect the well-being of people throughout the world. Students in this interdisciplinary program develop an understanding and appreciation of how and why interactions across national and ethnic borders are shaped by language, culture, politics, economic development, and conflict.

The program is comprised of a number of specialization tracks which address issues from the perspective of different disciplines. The tracks are:

- International Development and Conflict Management (http://globalstudies.umd.edu)
- International Engineering (http://ilp.umd.edu/coursework/)
- Global Poverty (http://arec.umd.edu/undergraduate/minors/global-poverty/)
- Global Terrorism Studies (http://start.umd.edu)

All students choose one course from a set of "signature" courses outside of their chosen track for exposure to major global issues addressed by the other Global Studies minors. The minors provide an opportunity for an experiential component within a student's elective courses, including a study abroad experience. The Global Studies Minor Program includes special activities that involve students across the minors, such as special speaker forums, participation in major events, and experiences in Washington, D.C.

# Honors College

Anne Arundel Hall
Phone: 301-405-6771
honors@umd.edu
http://honors.umd.edu

**Executive Director (through June 30, 2024):** Peter Mallios, Ph.D.
**Executive Director (effective July 1, 2024):** Kristy Maddux, Ph.D.
**Associate Directors:** Stephen Blatti, Traci Dula, and Jenny Lang

The University of Maryland Honors College gives students of great promise the opportunity to encounter new ideas and experiences, to learn through inclusive community and with deep respect for others, and to explore the power of knowledge to make a difference in the world. Bringing the vast resources of a premier public research university directly to students, the Honors College offers eight cutting-edge academic programs, unique opportunities across the university and the nation's capital area, and a culture of diverse and supportive community which make our Honors College unlike anywhere else.

The Characteristics of an Honors College Graduate:

- Critically self-reflective
- Ethically aware
- An intellectual and creative risk-taker
- Collaborative
- Committed to deep respect for and listening to diverse others, and values of inclusivity

Small classes and outstanding teachers encourage discussion and foster innovative thinking across academic disciplines. Honors students have exclusive access to Honors living-learning program courses and Honors versions of courses offered by the academic departments on campus.

Students in the Honors College may earn an Honors College Citation on the transcript by completing coursework and satisfying all requirements in an Honors Living-Learning Program (http://www.honors.umd.edu/livinglearning-prospstudents.html). Honors Living-Learning Programs include: ACES (http://www.aces.umd.edu/), Design Cultures & Creativity (https://dcc.umd.edu), Gemstone (http://www.gemstone.umd.edu/), Honors Humanities (http://www.honorshumanities.umd.edu/), Integrated Life Sciences (http://www.ils.umd.edu/), Interdisciplinary Business Honors (https://ibh.umd.edu/), Honors Global Communities (https://globalcommunities.umd.edu/), and University Honors (http://www.universityhonors.umd.edu/). Acceptance of first-year students into the Honors College is competitive and by invitation based on the standard application to the University of Maryland (by November 1st for best consideration for Honors College and merit scholarships).

In addition to joining an Honors College Living-Learning Program, Honors students may apply to one of over 40 Departmental Honors Programs offered by the academic departments and colleges on campus to take full advantage of advanced, discipline-based Honors coursework and research opportunities in their major area of study. Most departmental honors programs begin in the sophomore or junior year. Students in a Departmental Honors Program (http://www.honors.umd.edu/departmentalhonors.html) may earn departmental honors on the transcript and diploma.

# Individual Studies Program

2407 Marie Mount Hall
Phone: 301-314-0023
individualstudies@umd.edu
http://ivsp.umd.edu

**Director:** Joan Burton, Ph.D.

The Individual Studies Program (IVSP) is a degree-granting academic program administered through the Office of Undergraduate Studies. The program enables students to design their own interdisciplinary majors leading to the Bachelor of Arts or Bachelor of Science degree. Students draw primarily from the University of Maryland's course offerings to form an academic concentration not otherwise available to them at the institution. A written proposal defining the student's major and outlining the curriculum is required to apply to the program. Recent individually-created student majors have included such titles as Global Health, Civic Engagement and Media, Design and the Built Environment, Global Economic Development, Middle Eastern Studies, Immigration and Ethnic Studies, Neuroscience, Maternal and Child Health, Environmental Business, Medieval Studies, Modern Ethnomusicology, and Urban Planning and Renewal. The program provides a supportive community of highly engaged and self-motivated students, alumni, and staff.

Students must seek the guidance and approval of a Faculty Mentor prior to having their proposal reviewed by the Individual Studies Faculty Review Board. If approved, the courses agreed upon by the Faculty Review Board become the basis for the student's major requirements. These listed requirements from numerous academic departments, along with the general education requirements, are analogous to the academic requirements given to students who select from the university's traditional majors. However, each student is required to design a unique program of study and defend it in order to be a part of IVSP.

Individual Studies students must complete a senior capstone project and are encouraged to engage in internships, research projects, independent studies, and study abroad to supplement their work in the classroom. Drawing from real-world experience as a supplement to the academic curriculum is generally encouraged. Such projects often serve as a way for students to develop academic connections among the multiple disciplines involved in their programs.

While IVSP allows students the opportunity to create a unique academic program focused on a specific area of study, using courses from multiple academic departments, it does not substitute for or replicate the educational goals of existing university programs, including the Limited

Enrollment Programs (LEPs). IVSP programs may not include substantial numbers of courses from LEP departments.

Developing a successful IVSP proposal takes time and involves several meetings to review and edit the draft proposal. Ideally, interested students should contact the IVSP staff and begin the application process early in their academic career. Working closely with the IVSP staff and their prospective Faculty Mentor, students should plan to complete and submit their IVSP proposal, preferably during their sophomore year or in their junior year before reaching 90 credits.

***To be admitted into the Individual Studies Program, the student must:***

1. Have a clearly defined academic goal that cannot be reasonably satisfied in an existing curriculum at the University of Maryland, College Park.
2. Have at least 30 earned college credits with at least 12 credits completed at College Park.
3. Have a minimum of a 2.5 GPA in each of their previous two semesters of college and at least a 2.0 GPA overall.
4. Complete at least 30 additional credits beginning the term following admission to IVSP.
5. Identify an appropriate faculty mentor, preferably tenured or tenure track, with significant undergraduate education experience related to the field of study.
6. Complete a detailed plan of study (proposal) that is approved by their Faculty Mentor and then approved by the Individual Studies Faculty Review Board. This proposal will include:
   a. A clear statement of the central academic purpose for their major.
   b. Specific course requirements including at least 27 credits of upper-division major coursework (300- and 400-level) beyond the IVSP courses (IVSP317, IVSP318, and IVSP420).
   c. The list of courses must include at least one Writing Craft course (in addition to the CORE Fundamental Studies Academic Writing and the Professional Writing requirements) selected from an approved list that is available from the Individual Studies staff.
   d. A semester-by-semester plan for the completion of their undergraduate degree within a reasonable period of time.

***Following admission, students must:***

1. Earn a grade of "C-" or better in all courses required in their IVSP program of study, including IVSP420 as well as a satisfactory grade in IVSP317.
2. Complete mandatory advising sessions with their Faculty Mentor and the IVSP staff every semester, including a review of their semester-by-semester academic plan for completion of their IVSP program.
3. If not already completed, work towards immediate completion of the Fundamental Studies requirements.

For details and further information, you may visit the IVSP website at http://ivsp.umd.edu, Students are also encouraged to visit the program office at 2407 Marie Mount Hall.

# Maryland Fellows Program

2407 Marie Mount Hall
Phone: 301-314-0689
fedglobal@umd.edu
http://marylandfellows.umd.edu

**Director:** Joan Burton, Ph.D.

Maryland Fellows is a selective, yearlong program offered within the Office of Undergraduate Studies. The program brings together students from all disciplines to learn, discuss, and explore issues related to state and local policy, and galvanizes students toward public service careers. The centerpiece of the program is the Maryland General Assembly as well as other state and local organizations including NGOs and non-profits. Rising sophomores, juniors, and seniors with strong academic backgrounds and an interest in exploring the possibility of public service are encouraged to apply. The program launches in fall 2023 as a collaboration between the Federal and Global Fellows Programs, the English Department's existing Maryland General Assembly Writing Internship, and the Department of Government and Politics.

Students who successfully complete all program requirements will earn a "Maryland Fellows" notation on their transcript.

The Maryland Fellows Program consists of three primary components:

1. The Maryland Fellows Seminar (https://www.marylandfellows.umd.edu/fallseminars.html): FGSM310, the Maryland General Assembly Writing Internship, and FGSM315 (3 credits, fall semester). A choice of seminar courses, each focused on a specific theme (for example, political engagement and advocacy, the Maryland General Assembly Writing Internship). The seminars benefit from the diversity of students who participate in the program. The small setting allows students to bring knowledge from their disciplinary focus into the discussion. Taught by expert practitioners, the seminars examine the policy-making process and discuss vital current issues within each theme. Guest speakers provide real-world perspectives on how governments and other actors create and implement policy.
2. The Internship: FGSM398 (3-9 credits, spring semester). The Maryland Fellows experiential learning course offers credit for an internship with the Maryland General Assembly, other state and local agencies and organizations, NGOs, non-profits, and related organizations. In class, students work on professional development and reflect on their internship experiences through journal assignments. With permission, students may complete the internship under the course number for internships in the student's major or other programs.
3. Supporting course work: Two regular UM courses, approved by the Maryland Fellows program, that complement the Maryland Fellows mission (6 credits). With permission, students may apply courses completed prior to the Maryland Fellows year. Students also participate in Maryland Fellows activities including site visits, conversations with leaders in public policy, professional development workshops, one-on-one advising check-ins, and an end-of-the-year reception. The program offers a lively, engaged community of students and supportive alumni. Students in the program must have completed 30 credits by the end of the semester in which they apply and have a grade point average of 3.0 or higher. For details and application, please see http://marylandfellows.umd.edu.

# Naval Reserve Officer Training Corps Program (Naval ROTC)

0110 Reckord Armory
Phone: 301-314-6289
navalrotc@umd.edu

http://navalrotc.umd.edu

**Director:** Captain John Howrey

The Naval Reserve Officers Training Corps (NROTC) Program was established to educate and train qualified young men and women for service as commissioned officers in the US Navy (unrestricted line), or in the Marine Corps while completing their undergraduate degree. The NROTC Scholarship Program fills a vital need in preparing mature young men and women for leadership and management positions in an increasingly technical Navy and Marine Corps. It is highly recommended that students seeking a commission contact the Department of Naval Science/NROTC unit for full program details before registering for classes.

## Program Requirements

The UMD NROTC Program was established to educate and train qualified young men and women for service as commissioned officers in the United States Navy and Marine Corps. The NROTC Scholarship Program plays an important role in preparing mature young men and women for leadership and management positions in an increasingly technical military environment. NROTC midshipmen are required to complete the naval science courses and attend weekly professional seminars. During the summer, NROTC midshipmen participate in active duty at sea or shore-based training cruises for approximately four weeks. Upon receiving their Baccalaureate Degree and completing the NROTC program, qualified midshipmen are commissioned as ensigns in the U.S. Navy or second lieutenants in the Marine Corps. Commissioned naval officers go on to training in various warfare specialties and serve as surface or submarine officers, naval aviators, explosive ordinance disposal officers or SEALs. Marine Corps officers attend “The Basic School” in Quantico, Virginia, and serve in fields such as infantry, artillery, combat engineers, and aviation. Staff positions (intelligence, law, medicine) are not normally offered through NROTC.

The NROTC Program was established to develop midshipmen mentally, morally and physically and to imbue them with the highest ideals of duty, and loyalty, and with the core values of honor, courage and commitment in order to commission college graduates as naval officers who possess a basic professional background, are motivated toward careers in the naval service, and have a potential for future development in mind and character so as to assume the highest responsibilities of command, citizenship and government.

## Academic Requirements

The Naval Science curriculum includes courses on topics such as Navy and Marine Corps organization, at-sea navigation, leadership, naval history, amphibious warfare, engineering, and weapons systems. Courses emphasize development of professional knowledge and leadership skills, which are placed in the context of military service immediately following graduation from University of Maryland.

Students in the NROTC program enroll in one Naval Science course per term. Some courses are required for both Navy and Marine option students, while others are specific to the branch of service. All NROTC students must also enroll in the Naval Science Laboratory (NAVY108) each term.

Navy option students must complete eight core curriculum courses offered by University of Maryland, including two term courses in calculus to be completed by the sophomore year, two term courses in calculus-based physics, with laboratory, to be completed by the junior year, two term courses in English or equivalent writing courses, one term course in history or national security policy, and one term course in world culture or regional studies.

## Curriculum

Navy Option students typically will take:

| Freshman Year | | | |
|---|---|---|---|
| **First Semester** | **Credits** | **Second Semester** | **Credits** |
| NAVY100 | 3 | NAVY101 | 3 |
| | **3** | | **3** |
| **Sophomore Year** | | | |
| **First Semester** | **Credits** | **Second Semester** | **Credits** |
| NAVY200 | 3 | NAVY201 | 3 |
| | **3** | | **3** |
| **Junior Year** | | | |
| **First Semester** | **Credits** | **Second Semester** | **Credits** |
| NAVY300 | 3 | NAVY301 | 3 |
| | **3** | | **3** |
| **Senior Year** | | | |
| **First Semester** | **Credits** | **Second Semester** | **Credits** |
| NAVY400 | 3 | NAVY401 | 3 |
| | **3** | | **3** |
| **Total Credits 24** | | | |

Marine Option typically will take:

| Freshman Year | | | |
|---|---|---|---|
| **First Semester** | **Credits** | **Second Semester** | **Credits** |
| NAVY100 | 3 | NAVY101 | 3 |
| | **3** | | **3** |
| **Sophomore Year** | | | |
| **First Semester** | **Credits** | **Second Semester** | **Credits** |
| NAVY200 | 3 | NAVY302 | 3 |
| | **3** | | **3** |
| **Junior Year** | | | |
| | | **Second Semester** | **Credits** |
| | | NAVY402 | 3 |
| | | | **3** |
| **Senior Year** | | | |
| | | **Second Semester** | **Credits** |
| | | NAVY401 | 3 |
| | | | **3** |
| **Total Credits 18** | | | |

## Scholarships and Incentives

Recipients of National Scholarships are selected from applicants to a national competition (http://www.netc.navy.mil/nstc/nrotc/). Additionally, through the NROTC 3 year and 2 year scholarship process, freshmen and sophomore members of NROTC in all degree programs are eligible to compete for scholarships also based on a competitive NROTC selection process. Scholarship recipients receive money for full tuition and fees, a book allowance (currently $750/year), and a monthly allowance from $250 to $400, depending on the student's NROTC year. If unqualified for a scholarship but recommended for "advanced standing," a student will have the ability to commission in the U.S. Navy and will receive a book

stipend and monthly allowance. There are no scholarship opportunities for juniors or seniors.

### Campus Involvement

The NROTC unit values well-rounded future officers and encourages battalion members to get involved with numerous activities on campus. With participation in an internship, a semester abroad, intramural and varsity sports teams, fraternities or sororities, music or performance groups and countless clubs and groups, many members find outside activities an enjoyable aspect of their college experience.

## National Scholarships Office

2403 Marie Mount Hall
Phone: 301-314-1289
scholarships@umd.edu
http://scholarships.umd.edu

**Director:** Francis DuVinage, Ph.D.

The National Scholarships Office at the University of Maryland, College Park aims to provide undergraduates with the best possible information, guidance and support as they learn about and apply for national scholarships.

National scholarships are competitive, prestigious awards that provide opportunities and support for a wide range of enriching experiences, including study abroad, graduate study (and sometimes undergraduate study also), federal employment, teaching, research, and public service. National scholarships are looking for students (with or without financial need) who are developing strong interests and goals - academic and extracurricular - and who want to take advantage of every constructive opportunity that will help them reach their objectives. Just as each national scholarship offers a different kind of opportunity, each is also looking for a different range of strengths and interests in its applicants. If you develop a strong academic record, are thoughtful about your choices and devote yourself to activities you care about, you may well find one or more scholarship opportunities of interest to you.

The National Scholarships Office strives to make learning about and applying for national scholarships an enlightening experience. In addition to providing information about national scholarships through our website, through group presentations and through individual advising, we also provide individualized guidance and support at every stage of the application process. We invite you to visit our website and to make an appointment with us to learn more about national scholarships that may help you attain your goals.

## Southern Management Leadership Program (SMLP)

2301 Marie Mount Hall
ugst@umd.edu
https://www.smlp.umd.edu/

**Director:** Sara Herald

The Southern Management Leadership Program (formerly Hillman Entrepreneurs Program) is a scholarship and academic support initiative targeted to students who have an interest in entrepreneurship and an enthusiasm for starting a business venture or leading a company. The goal is to support, develop, and graduate ethical leaders who want to energize and give back to their local communities. The Southern Management Leadership Program offers a new model in education. Students who might not otherwise be able to afford a college education are now starting their college career at either Prince George's Community College or Montgomery College and then transferring to the University of Maryland to complete their degree in any major. They receive up to 2/3 tuition in scholarship funds. They also receive deep mentoring from full-time mentors at each institution. Students participate in community and team-building activities while taking classes in entrepreneurship and leadership.

## Curriculum

**SMLP470 Fundamentals of Entrepreneurial Ventures (3 Credits)**
Learn the processes and skills needed to launch and manage start-up ventures, including technology startups. Assess the feasibility of a startup ventures, as well as how to apply best practices for planning, launching, and managing new companies by using real-world examples and in-depth case studies. Discuss a wide range of issues of importance and concern to entrepreneurs and learn to recognize opportunity, assess the skills and talents of successful entrepreneurs, and learn models and approaches that help navigate uncertainty.
**Restriction:** Restricted to students in the Southern Management Leadership Program.
**Credit Only Granted for:** HLMN470, SMLP470, ENES460 or BMGT461.
**Formerly:** HLMN470.
**Additional Information:** SMLP470 may not count toward any BMGT major or minor degree.

**SMLP471 Entrepreneurial Finance (3 Credits)**
Examine the elements of entrepreneurial finance, develop and analyze financial statements, focusing on technology-based startup ventures and the early stages of company development. Address key questions that challenge all entrepreneurs: how much money can and should be raised; when it should be raised and from whom; how to define a reasonable valuation of a company; and how to structure funding, develop employment contracts, and make exit decisions. Analyze the variety of financing models across a venture's life cycle, with an aim to understanding the incentives of each type of investor and the relative costs and benefits of each source of funding.
**Restriction:** Restricted to students in the Southern Management Leadership Program.
**Credit Only Granted for:** HLMN471, SMLP471, ENES466 or BMGT365.
**Formerly:** HLMN471.
**Additional Information:** SMLP471 may not count toward any BMGT major or minor degree.

**SMLP472 Strategies for Innovation & Entrepreneurship (3 Credits)**
Understand the process of technological change; the ways that firms come up with innovations; the strategies that firms use to benefit from innovation; and how to create new value not only through new products or services, but with novel technologies, business concepts, organizing structures, transaction/financing mechanisms, distribution channels, and market segmentation. Challenge students to think about how to create value and build a productive business organization with available resources (e.g. intelligence, insight, energy, initiative and personal relationships).
**Restriction:** Restricted to students in the Southern Management Leadership Program.
**Credit Only Granted for:** HLMN472, SMLP472, BMGT467, or ENES463.
**Formerly:** HLMN472.
**Additional Information:** SMLP472 may not count toward any BMGT major or minor degree.

**SMLP473 Consulting in Tech Entrepreneurship (3 Credits)**
Apply the entrepreneurship/business principles learned in the classroom to real-world consulting projects. Gain practical experience by solving actual business situations and by dealing with ambiguity and uncertainty inherent in fast-moving technical organizations. Develop key skills in negotiation, group dynamics, organization, and planning.
**Restriction:** Restricted to students in the Southern Management Leadership Program.
**Credit Only Granted for:** HLMN473 or SMLP473.
**Formerly:** HLMN473.
**Additional Information:** HLMN473 may not count toward any BMGT major or minor degree.

# Advanced Cybersecurity Experience for Students Minor

Prince Frederick Hall
Phone: 301-314-7414
aces@umd.edu
http://aces.umd.edu

**Director:** Michel Cukier, Ph.D.

The ACES (Advanced Cybersecurity Experience for Students) Minor is housed in the Honors College but is open to all undergraduate students in all majors. This minor takes a multidisciplinary approach to cybersecurity education in that students gain knowledge about many of the fields that intersect in cybersecurity (e.g., legal and public policy aspects, criminal justice, journalism, and computer science and engineering). With an emphasis on hands-on experiences, students will gain practical skills through coursework, seminars, group projects, internships, and research, both on and off campus.

Students in the ACES Minor will also have opportunities to engage in the larger ACES community, including serving as peer mentors, tutors, and advisors for ACES Living-Learning Program students; participating in educational events; and serving as student leaders on the ACES Student Board. ACES Minor students will also have regular interactions with corporate and governmental leaders in cybersecurity, who will serve as both mentors and professional contacts.

# REQUIREMENTS

The ACES Minor features a customizable 16-credit curriculum.

| Course | Title | Credits |
|---|---|---|
| **PREREQUISITES: Required for students who have not completed the ACES Living-Learning Program** | | |
| HACS201 | Introduction to UNIX [1] | 1 |
| HACS202 | Group Project in Cybersecurity | 3 |
| **Total Credits** | | **4** |

[1] HACS201 is waived for students who have completed CMSC216

| Course | Title | Credits |
|---|---|---|
| **Required Course** [2] | | |
| HACS318 | Cybersecurity Professionals Colloquium Series | 1 |
| **Electives** [3] | | |
| HACS408 | Advanced Seminar in Cybersecurity | 3 |
| **Experiential Learning** | | |
| Select a minimum of 3 and a maximum of 6 credits | | |
| HACS479 | Undergraduate Research in Cybersecurity | 1-3 |
| HACS498 | Cybersecurity Group Problem Solving | 3 |
| **Total Credits** | | **8-10** |

[2] Required for all ACES Minor students
[3] Select at least 3 courses. Students may also substitute one or two electives from courses including CCJS418B, CMSC414, CMSC456, CMSC498R, ENEE459C, ENEE459D, ENEE459E, and ENME442.

**Notes:**

- At the time of application students must have 30 university credits completed (including transfer credit), a minimum cumulative GPA of a 3.0, and at least 3 semesters remaining prior to graduation
- Upon admission to the minor students will become part of the Honors College and are subject to its policies
- Students must maintain a 3.0 cumulative GPA to remain in good standing in the minor per Honors College requirements
- All courses used to satisfy the requirements of the minor must be completed with a grade of "C-" or better
- A maximum of 2 courses may be used to satisfy the requirements of both a major and a minor

# Army Leadership Studies Minor

**Program Director:** LTC Daniel Fass

The Army Leadership Studies program promotes the development of undergraduate students on small group leadership. Students will walk away with an in-depth understanding of Small Unit Tactics, Land Navigation and Field Training, Operations and Logistical Planning, Team Building, and Peer-to-Peer counseling. The core courses in the Minor are sequenced to meet the increasingly complex sets of outcomes-based instruction across cognitive, personal development, and group/organizational domains.

The Army Leadership Studies minor consist of the courses identified below and is open to any student at the University of Maryland. Students of all majors will be eligible to apply and prior military or ROTC experience is not required. Students seeking a minor in Army Leadership Studies must be approved by the Director of Army ROTC.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| ARMY301 | Advanced Military Leadership I | 3 |
| ARMY302 | Advanced Military Leadership II | 3 |
| ARMY401 | Advanced Military Leadership III | 3 |
| ARMY402 | Advanced Military Leadership IV | 3 |
| **Elective** | | |
| HIST224 | Modern Military History, 1494-1815 | 3 |
| or HIST225 | Modern Military History, 1815-Present | |
| **Total Credits** | | **15** |

**At the 300 level**, students learn the application of Army leadership strategies, critical decision making methodologies, physical and mental fitness excellence. Includes a laboratory period in applied leadership, common military tasks and physical fitness, as well as a three day field exercise.

**At the 400 level**, students learn the military system and code of ethics in the military environment is studied. Topics include code of conduct during all forms of military operations, the Geneva Conventions and the ethical decision making process. Also includes a laboratory in applied leadership skills, fitness excellence and two field exercises.

# Asian American Studies Minor

**Asian American Studies Program (AAST)**
2117 Susquehanna Hall
Phone: 301-405-0996
aast@umd.edu
http://aast.umd.edu

**Director:** Janelle Wong, Ph.D.

In the Asian American Studies Program (AAST), students undertake an interdisciplinary and critical study of race, immigration, and political and social representation through examination of the experiences of Asian Americans. Students study the experiences of Asian Americans compared to and connected with other groups in the United States, as well as situated within a global and transnational context. Through this approach, students examine the histories, communities and cultures of Asian Americans as both distinctive and connected to the broader themes for diversity, ethnicity, race, gender, sexual orientation, and migration in the Americas. AAST offers a 15 credit-hour minor. For the minor, courses may be cross-listed in other departments and some may satisfy general education requirements.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **AAST Foundational Course** | | |
| Select one of the following: | | 3 |
| AAST200/ AMST298C | Introduction to Asian American Studies | |
| AAST201/ HIST221 | Asian American History | |
| **Elective Courses** | | |
| Select 9 credits of additional AAST or other approved courses | | 9 |
| Two (2) must be AAST electives | | |
| and | | |
| One (1) must be a Comparative Marginalizations or Global/Transnational/International course (CM/GTI). [1] | | |
| Of these three (3) elective courses, at least two (2) must be upper-division (300- or 400-level). | | |
| AAST200 | Introduction to Asian American Studies (if not taken for foundational course requirement) | |
| AAST201 | Asian American History (if not taken for foundational course requirement) | |
| AAST222 | Immigration and Ethnicity in the US | |
| AAST233 | Introduction to Asian American Literature | |
| AAST262 | Asian American Psychology | |
| AAST298 | Special Topics in Asian American Studies (AAST298G Asian American Foodways) | |
| AAST298 | Special Topics in Asian American Studies (AAST298O South Asian American Experience) | |
| AAST351 | Asian Americans and Media | |
| AAST355 | Asian Americans in Film | |
| AAST363 | Filipino American History and Biography | |
| AAST378 | Experiential Learning | |
| AAST388 | Independent Research | |
| AAST394 | Growing Up Asian American: The Asian Immigrant Family and the Second Generation | |
| AAST420 | Asian American Women: The Social Construction of Gender | |
| AAST421 | Asian American Public Policy | |
| AAST424 | Sociology of Race Relations | |
| AAST440 | South Asian American Literature and Culture | |

| | | |
|---|---|---|
| AAST443 | Asian American Politics | |
| AAST498 | Advanced Topics in Asian American Studies (AAST498Q Native Hawaiian Pacific Islander Studies) | |
| **Upper Division Courses** | | |
| AAST499 | Senior Thesis (Or one additional 400-level AAST course) [2] | 3 |
| **Total Credits** | | **15** |

Notes:

- No more than 6 credits (2 courses) taken at the 100 or 200-level may count towards the minor.
- A minimum of 9 credits (3 courses) must be taken at the 300 or 400-level.
- All courses used for the minor must have a grade of C- or better.
- A student may use a maximum of 6 credits (2 courses) to satisfy requirements for both a major and a minor. Courses completed for one minor may not be used to satisfy the requirements for another minor.

[1] See approved CM/GTI elective courses (https://docs.google.com/spreadsheets/d/1iORXtiKinV1vVy38gxCe_DJGjZY4xXtKkdXWGSf0oxQ/edit/?usp=sharing) for the most current list of courses that fulfill the Comparative Marginalizations/Global/Transnational International elective requirement. Students may take a course not on this list with approval from the AAST Director.

[2] Restriction: Permission of the instructor or enrolled in AAST minor. This advanced colloquium in Asian American Studies is designed as a senior seminar. The course offers an intensive learning experience and students are required to complete a thesis, applied research project, or take part in and write about a sustained community experience.

[3] Restriction: Permission of instructor or enrolled in AAST minor. This advanced colloquium in Asian American Studies is designed as a senior seminar. The course offers an intensive learning experience and students are required to complete a thesis, applied research project, or take part in and write about a sustained community experience.

# Global Studies Minor

The Global Studies Minor Program provides opportunities for students from any discipline or major to study how evolving global connections affect the well-being of people throughout the world. Students in this interdisciplinary program develop an understanding and appreciation of how and why interactions across national and ethnic borders are shaped by language, culture, politics, economic development, and conflict.

The program is comprised of a number of specialization tracks which address issues from the perspective of different disciplines. The tracks are:

- International Development and Conflict Management (https://cidcm.umd.edu)
- International Engineering (http://ilp.umd.edu/coursework/)
- Global Poverty (http://arec.umd.edu/undergraduate/minors/global-poverty/)
- Global Terrorism Studies (http://start.umd.edu)

All students choose one course from a set of "signature" courses outside of their chosen track for exposure to major global issues addressed by the other Global Studies minors. The minors provide an opportunity for an experiential component within a student's elective courses, including a study abroad experience. The Global Studies Minor Program includes special activities that involve students across the minors, such as special speaker forums, participation in major events, and experiences in Washington, D.C.

# Individual Studies Program

2407 Marie Mount Hall
Phone: 301-314-0023
individualstudies@umd.edu
http://ivsp.umd.edu

**Director:** Joan Burton, Ph.D.

The Individual Studies Program (IVSP) enables UM students to design their own interdisciplinary majors, subject to a proposal process, when their educational goals cannot be reasonably achieved within an existing departmental curriculum. The Individual Studies Program leads to a Bachelor of Arts or Bachelor of Science degree. IVSP degree programs focus on academic and intellectual growth through interdisciplinary study. Individually created student majors have recently included such titles as International Relations and East Asia, Global Health, 3D Environment Modeling and Design, Environmental Sustainability, Education and Social Change in Latin America, Healthcare Management for Diverse Communities, Global Development, Middle Eastern Studies, Asian American Policy and Advocacy, Women's Health, Digital Media in Society, and Urban Policy Studies.

For information, see Office of Undergraduate Studies (p. 512).

# Program Learning Outcomes

1. Students will demonstrate the ability to gather information, understand the defining-concepts from three or more areas of study, and combine these concepts to propose an individually designed major to be independently pursued.
2. Students will be able to apply the concepts of their individually designed major in an internship or independent research project.
3. Through a final capstone project, students will demonstrate their ability to integrate different areas of study to examine a question, problem, or phenomenon.

# Military Studies Minor

**Program Director:** Colonel Nathan Rabe

The minor in Military Studies provides students with the opportunity to study the U.S. military and more specifically the U.S. Air Force. Students seeking a minor in Military Studies are not required to be members of the Air Force ROTC program. This minor enables students to develop a secondary academic experience which may serve them in the future. The minor may also alert potential employers to the student's knowledge in a minor field of study.

The Military Studies minor consists of the courses identified in the Requirements section, and is open to any student at the University of Maryland. Students seeking a minor in Military Studies must be approved by the Director of Air Force ROTC and be advised by instructional personnel in that office.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Required Courses** [1] | | |
| ARSC300 | Leading People and Effective Communication I | 3 |
| ARSC301 | Leading People and Effective Communication II | 3 |
| ARSC400 | National Security and Preparation for Active Duty I | 3 |
| ARSC401 | National Security and Preparation for Active Duty II | 3 |
| **Elective Courses** [2] | | |
| Select one of the following Global Affairs courses: | | 3 |
| GVPT200 | International Political Relations | |
| GVPT280 | The Study of Comparative Politics | |
| GVPT289L | | |
| GVPT354 | International Development and Conflict Management | |
| GVPT360 | International Negotiations | |
| GVPT456 | The Politics of Terrorism | |
| HIST224 | Modern Military History, 1494-1815 | |
| HIST225 | Modern Military History, 1815-Present | |
| HIST240 | Europe in the Twentieth Century | |
| HIST266 | The United States in World Affairs | |
| HIST353 | America in the Revolutionary Era, 1763-1815 | |
| HIST355 | Civil War and the Rise of Industrialization, 1860-1900 | |
| HIST357 | Recent America: 1945-Present | |
| Select on of the following Military Affairs courses: | | 3 |
| BMGT360 | Strategic Management of Human Capital | |
| BMGT364 | Managing People and Organizations | |
| JOUR283 | Probing War: Investigative Narratives and American Conflicts | |
| SOCY120 | Veterans in American Society: What does America Owe Its Veterans? | |
| SOCY464 | | |
| SOCY465 | The Sociology of War: State and Society since the American Revolution | |
| SOCY869 | | |
| BSST334 | States of Emergency | |
| **Total Credits** | | **18** |

[1] At the 300 level, students focus on case studies in effective leadership, management, and team-building. Readings explore topics such as accountability, motivation, teamwork, and ethical and moral leadership. These exercises help students develop critical thinking and problem solving skills, as well as effective professional writing.
At the 400 level, students study military policies, doctrine, and strategy, especially as related to areas of the world that are in crisis or transition. Special units are included on Europe, South Asia, East Asia, Latin America, Russia, and the Middle East to prepare students to function effectively in today's multi-ethnic, multi-cultural societies at home and abroad. Students also explore problem areas in military personnel management, including sexual harassment awareness, suicide awareness, and guidelines for working with civilian personnel. Capstone projects and activities for each student are part of the 400-level curriculum.

[2] Other courses may be substituted with approval of the minor advisor and Advisory Committee. Students will be advised on the options for seeking BMGT courses.

## Restrictions

- Courses completed in one minor may not be used to satisfy the requirements in another minor.
- No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park.
- At least six upper division credits applied to the minor must be taken at the University of Maryland, College Park.
- All courses presented for the Minor must be passed with a grade of "C-" or better.
- Course work other than that listed in section B must be approved by the Air Force ROTC advisor and the ROTC Advisory Committee.

# Naval Science Minor

**Program Director:** Captain John Howrey

The minor in Naval Science is a 24-Credit minor that provides students with the opportunity to develop their own inherent leadership skills through the Naval NROTC development program. Students seeking a minor in Naval Science are not required to be members of the Naval ROTC program. This minor program enables students to develop a secondary academic experience that may serve them in their future professional work.

The Naval Science minor is open to any student at the University of Maryland. Students seeking a minor in Naval Science must be approved by the Professor of Naval Science of the Naval ROTC program and be advised by instructional personnel in that office.

## REQUIREMENTS

| Course | Title | Credits |
|---|---|---|
| **Naval Science Core** | | **18** |
| 18 credits selected from the following: | | |
| NAVY100 | Introduction to Naval Science | |
| NAVY101 | Sea Power and Maritime Affairs | |
| NAVY200 | Leadership and Management | |
| NAVY201 | Navigation | |
| NAVY300 | Naval Ship Systems I (Engineering) | |
| NAVY301 | Naval Ship Systems II (Weapons) | |
| NAVY302 | Evolution of Warfare | |
| NAVY400 | Naval Operations and Seamanship | |
| NAVY401 | Leadership and Ethics | |
| NAVY402 | Fundamentals of Maneuver Warfare | |
| **Expanded Learning** | | **6** |
| National Security/Military History | | |
| HIST224 | Modern Military History, 1494-1815 | |
| HIST225 | Modern Military History, 1815-Present | |
| Cultural/Regional Studies [1] | | |
| GEOG130 | Development Geography: Environmental & Social Justice | |
| HIST120 | Islamic Civilization | |

| | |
|---|---|
| HIST284 | East Asian Civilization I |
| HIST285 | East Asian Civilization II |
| PERS251 | Modern Iran |
| **Total Credits** | **24** |

[1] One semester course to enhance knowledge of cultural and/or regional studies of developing nations. Courses are not limited to the examples listed.

# UNIVERSITY POLICIES

University of Maryland, College Park and University System of Maryland policies and procedures that may impinge on an undergraduate student's studies can be found on the following sites:

- **Consolidated USM and UMD Policies and Procedures:** https://policies.umd.edu/
- **University System of Maryland Academic Affairs:** https://www.usmd.edu/regents/bylaws/SectionIII/
- **Statewide Educational Policies:** https://dsd.maryland.gov/Pages/COMARHome.aspx/

## Appendix A: University of Maryland Non-Discrimination Policy and Procedures VI-1.00(B)

https://policies.umd.edu/general-administration/university-of-maryland-non-discrimination-policy-and-procedures/

## Appendix B: University of Maryland Policy and Procedures on Sexual Harassment and Other Sexual Misconduct VI-1.60(A)

https://policies.umd.edu/general-administration/university-of-maryland-policy-and-procedures-on-sexual-harassment-and-other-sexual-misconduct/

## Appendix C: University of Maryland Code of Student Conduct V-1.00(B)

https://policies.umd.edu/student-affairs/university-of-maryland-code-of-student-conduct/

## Appendix D: University of Maryland Policy and Procedures on the Disclosure of Student Education Records III-6.30(A)

The policy below is current as of this publication. For more information and possible updates go to: https://policies.umd.edu/academic-affairs/university-of-maryland-policy-and-procedures-on-the-disclosure-of-student-education-records/.

(Approved by the President August 1, 1991; technical amendments April 15, 1996; June 2, 1997; October 1, 2002; amended December 11, 2018)

### I. POLICY

A. It is the policy of UMD to comply with the requirements of the Federal Family Educational Rights and Privacy Act (FERPA), also known as the Buckley Amendment, concerning the disclosure of student records. FERPA affords eligible students certain rights with respect to their education records. These rights include:

1. The right to inspect and review the student's education records.
2. The right to request the amendment of the student's education records.
3. The right to provide written consent before UMD discloses personally identifiable information (PII) from the student's education records, except to the extent that FERPA authorizes disclosure without consent.
4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by UMD to comply with the requirements of FERPA.

B. Following is an outline of the policy, and an explanation of the procedures by which students may obtain access to education records. Accordingly, UMD shall provide students with annual notification of their rights pursuant to FERPA.

### II. DEFINITIONS

A. **"Attendance"** includes but is not limited to attendance in person or by paper correspondence, videoconference, satellite, Internet, or other electronic information and telecommunication technologies for students who are not physically present in the classroom; and the period during which a person is working under a work-study program.

B. **"Directory Information"** means information which would generally not be considered harmful or an invasion of privacy if disclosed. It includes, but is not limited to, a student's name, address, telephone listing, e-mail address, date and place of birth, major field of study, full-time/part-time status, participation in officially recognized activities and sports, weight and height of members of athletic teams, dates of attendance, degrees and awards received, and the most recent previous educational agency or institution attended.

C. **"Disclosure"** means to permit access to or the release, transfer, or other communication of, PII contained in education records by any means, including oral, written, or electronic means, to any party except the party identified as the party that provided or created the record.

D. **"Education Records"** means those records directly related to a student and maintained by UMD or by a party acting on UMD's behalf. Education records do not include:

1. Sole possession records: records that are kept in the sole possession of the maker, are used only as a personal memory aid, and are not accessible or revealed to any other person except a temporary substitute for the maker of the record.
2. Records maintained by the UMD Police Department solely for law enforcement purposes and kept separately from the education records described above.
3. Records of employment which relate exclusively to the individual in that individual's capacity as an employee, and are not available for use for any other purpose. (**NOTE**: If a currently enrolled student is employed as a result of their status as a student, records relating to that employment are education records.)
4. Medical records on a student who is eighteen years of age or older made by a physician, psychiatrist, psychologist, or other recognized professional or paraprofessional made or used only for treatment purposes and available only to persons providing treatment. (**NOTE**: Treatment for the purposes of this definition does not include remedial educational activities.)
5. Post-attendance records: also called alumni records, are records which contain only information relating to a person's activities after

that person is no longer a student at UMD and do not relate to that person as a student.

6. Grades on peer-graded papers before they are collected and recorded by a teacher.

E. **"Eligible Student"** means a student who has reached the age of 18 or is attending UMD.

F. **"Parent"** means a parent of a student, and includes a natural or adoptive parent, a guardian, or, in the absence of natural or adoptive parents, an individual acting as a parent.

G. **"Party"** means an individual, agency, institution, or organization.

H. **"Personally identifiable information"** or **"PII"** means data or information which includes, but is not limited to, a student's name; a name of a student's parent or family member; an address of a student or a student's family; a personal identifier, such as a social security number, University Identification Number (UID), or biometric record; other indirect identifiers, such as mother's maiden name; other information that alone, or in combination, is linked or linkable to a specific student and that would allow a reasonable person in the UMD community who does not have personal knowledge of the relevant circumstances to identify the student with reasonable certainty; or information requested by a person who UMD reasonably believes knows the identity of the student to whom the education record relates.

I. **"Record"** means any information or data recorded in any medium (e.g., handwriting, print, tape, film, microfilm, microfiche, database, or any form of electronic data storage including emails).

J. **"School Official"** is a person employed by any institution within the University System of Maryland in an administrative, supervisory, academic, research, or support staff role; a member of the Board of Regents; or a person engaged, employed by, or under contract with UMD to perform a special task, such as an attorney, auditor, or student serving on a UMD committee (e.g., University Student Judiciary, Honor Council, Standing Review Committee, scholarship & awards committees, etc.).

K. **"Student Recruiting Information"** is information identified in the Solomon Amendment that UMD is required to provide to military recruiters upon request. Those items are: student name, addresses, telephone listings, age (or year of birth), class level, academic major, degrees received, and the most recent educational institution in which the student was enrolled.

## III. RIGHT TO INSPECT AND REVIEW EDUCATION RECORDS

A. Each student in attendance at UMD has a right to inspect and review their education records within 45 days after the day UMD receives a request for access. A student should submit to the registrar, dean, head of the academic department, or other appropriate official, a written request that identifies the record(s) the student wishes to inspect. The school official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the school official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.

B. Procedure

1. Form of Request
   Requests for access to education records must be made in writing and signed by the student.
2. Place of Request
   Requests are made to:
   Office of the Registrar
   1130 Clarence M. Mitchell, Jr. Building
   College Park, Maryland 20742-5231

1. Response by UMD
   UMD will comply with a request for access within a reasonable period of time, not to exceed 45 days after UMD receives a request for access. Whenever possible, arrangements shall be made for the student to read the records in the presence of a staff member.
2. Reproduction of Records
   A student may ordinarily obtain copies of education records by paying the cost of reproduction. The fee for photocopies is $0.25 per page. There is no charge for staff time to search for or collect education records. Only copies of a student's current UMD transcript will be provided. However, an official UMD transcript can be provided upon specific request of the student and subsequent payment of costs for the document.

C. Types and Locations of Education Records Maintained at UMD

(**NOTE:** All requests must be routed through the Office of the Registrar.)

1. Admissions (e.g., applications and transcripts from institutions previously attended)
   a. **Undergraduate**:
      Director of Undergraduate Admissions
      1130 Clarence M. Mitchell, Jr. Building
   b. **Graduate**:
      Director of Graduate Records
      Lee Building
2. Records & Registration Services (e.g., all ongoing academic and biographical records, undergraduate and graduate)
   Office of the Registrar
   1130 Clarence M. Mitchell, Jr. Building
3. Departments
   Departmental Offices
   Chair or Head of the Department
4. Deans
   Dean's Office of each School/College
5. Resident Life (e.g., student's housing records)
   Director of Resident Life
6. Advisors (e.g., with student permission: letters of evaluation, personal information sheet, transcript, test scores)
7. Office of Student Conduct (e.g., student's judicial and disciplinary records)
   Director of the Office of Student Conduct
   1130 Clarence M. Mitchell, Jr. Building
8. Counseling Center (e.g., biographical data, summaries of conversations with students, test results)
   Director of the Counseling Center
   Shoemaker Building
   (**NOTE**: Where records are used only for treatment purposes, they are not education records and are not subject to this policy.)
9. Financial Aid (e.g., financial Aid applications, needs analysis statements, awards made)
   Director of Financial Aid
   Lee Building

(**NOTE**: There is no student access to parents' confidential statements.)

10. University Career Center (e.g., recommendations and unofficial copies of academic records)
    Director of the Career Center
    Hornbake Library
11. Office of Student Financial Services (e.g., student accounts receivable, records of students' financial charges and credits with UMD)
    Office of Student Financial Services
    Lee Building

D. Waiver of Access to Confidential Recommendations

1. A student may waive any or all of their rights to review confidential letters of recommendation, subject to the following conditions:
   a. The waiver must be in writing, signed by the student, regardless of age.
   b. UMD shall not require such waivers as a condition to admission, or the receipt of any service or benefit.
   c. If right of access is waived, a student will be notified, upon written request, of the names of all persons making confidential recommendations. Such recommendations shall be used only for the purpose for which they were specifically intended.
2. A waiver may be revoked in writing at any time; however, by revoking it, the student does not have the right to inspect and review documents collected while the waiver was in force.

## IV. RIGHT TO REQUEST THE AMENDMENT OF EDUCATION RECORDS

It is the policy of UMD to provide students the opportunity to request that amendments be made to their education records which are believed to be inaccurate, misleading, or which violate the right to privacy or other rights.

A. Request to Amend an Education Record

1. A request must be in writing to the Office of the Registrar.
2. A request must contain:
   a. the specific document(s) being challenged; and
   b. the basis for the challenge.
3. UMD shall decide within a reasonable period of time whether to amend the document(s). The student shall be notified of the decision in writing, and if the decision is to refuse to amend, the student shall be notified of the right to a hearing.

B. Right to a Hearing

1. Upon request, a student shall be provided an opportunity for a hearing to challenge the content of education records.
2. A request for a hearing must be made in writing to the Office of the Registrar.
3. Within a reasonable period of time, the student shall be given reasonable advance notice in writing of the date, place, and time.

C. Conduct of Hearing

1. The hearing shall be conducted by a UMD official with no direct interest in the outcome.
2. The student shall have a full and fair opportunity to present evidence, and may be represented by individuals of their choice, including an attorney. The cost for such representation shall be the responsibility of the student.

D. Decision

1. The student shall be notified in writing within a reasonable period of time.
2. The decision is to be based solely upon evidence presented at the hearing, and must include a summary of the basis of the decision.
3. In cases where the challenged information is found to be inaccurate, misleading, or otherwise in violation of the privacy or other rights of the student, the education records shall be amended accordingly within a reasonable time.
4. In cases where the challenged information is not found to be inaccurate, misleading, or otherwise in violation of the privacy or other rights of a student, the student shall be informed in writing of the right to place in the challenged record a statement commenting on the information and explaining any reasons for disagreeing with the decision.
5. The statements described above shall be kept as part of the student's record and disclosed whenever that portion of the record is disclosed.

## V. DISCLOSURE OF PERSONALLY IDENTIFIABLE INFORMATION

It is the policy of UMD to limit disclosure of PII without a student's prior written consent, subject to the following limitations and exceptions:

A. Directory Information

1. This information may be disclosed and may appear in public documents unless a student files a written notice not to disclose any or all of the information (i.e., opts out). Such notice must be filed with the Office of the Registrar.
2. Students will be given annual notice of the categories of information designated as directory information.

B. Prior Consent Not Required

Prior consent is not required for disclosure of education records in several circumstances. These circumstances include disclosure:

1. To the student.
2. To anyone, if UMD has obtained the prior written consent of the student.
3. To anyone, in response to request for directory information, unless the student has opted out.
4. To UMD school officials determined to have a legitimate educational interest. They may access student education records within the scope of performing their job duties.
   A school official has a legitimate educational interest if the official is:
   a. Performing a task that has been assigned as part of their duties or a position description or contract.
   b. Performing a task related to a student's education.
   c. Performing a task related to the discipline of a student.
   d. Providing a service or benefit relating to the student's family, such as health care, counseling, job placement, or financial aid.
5. To officials of another institution of post-secondary education where the student seeks or intends to enroll, or where the student is already enrolled, if the disclosure is for purposes related to the student's enrollment or transfer. A student will be provided with a copy of the

records which have been transferred upon request and payment of copying fees as described above.

6. To authorized representatives of the following government entities, if the disclosure is in connection with the audit or evaluation of federal- or statesupported education programs, or for the enforcement of or compliance with federal legal requirements that relate to those programs: U.S. Comptroller General, U.S. Secretary of Education, U.S. Attorney General or state and local educational authorities, such as the Maryland Higher Education Commission (MHEC), the authority that is responsible for supervising UMD's education programs. Subject to controlling federal law, these officials will protect information received so as not to permit personal identification of students to outsiders.
7. To authorized persons and organizations, such as the Department of Veterans Affairs or an employer, in connection with financial aid for which the student has applied or which the student has received, if the information is necessary to determine eligibility for the aid, determine the amount of the aid, determine the conditions of the aid, or enforce the terms and conditions of the aid.
8. To state and local officials to which such information is required to be reported by effective state law adopted prior to November 19, 1974.
9. To organizations conducting education studies for, or on behalf of, UMD for the purpose of developing, validating, or administering predictive tests; administering student programs; and improving instruction. The studies shall be conducted so as not to permit personal identification of students to outsiders, and the information is to be destroyed when no longer needed for these purposes.
10. To accrediting organizations to carry out their accrediting functions.
11. To either parent of a student who is claimed as a dependent for income tax purposes by at least one parent.
12. To parents when their student (under age 21) is found to have violated UMD's alcohol or drug policies.
13. To appropriate parties when UMD determines that disclosure is necessary to protect the health or safety of the student or other individuals and the information will assist in resolving the emergency.
14. In response to a court order or subpoena, including ex parte orders under the USA Patriot Act. Unless the issuing entity orders UMD against prior notification, UMD will make reasonable efforts to notify the student before complying with the court order or subpoena.
15. To an alleged victim of a crime of violence when the disclosure is the result of a disciplinary hearing regarding the alleged perpetrator of that crime with respect to that crime.
16. To anyone requesting the final results of a disciplinary hearing against an alleged perpetrator who has been found in violation of the UMD Code of Student Conduct or UMD Sexual Misconduct Policy and Procedures relating to a crime of violence or non-forcible sex offense.
17. To the Department of Homeland Security (DHS), Immigration and Customs Enforcement (ICE) for the purpose of complying with a request from ICE relative to UMD's participation in the Student and Exchange Visitor Program (SEVIS).
18. To military recruiters who request "Student Recruiting Information" for recruiting purposes only (e.g., Solomon Amendment).
19. To the Internal Revenue Service (IRS) for purposes of complying with the Taxpayer Relief Act of 1997.
20. When the disclosure concerns sex offenders and other individuals required to register under state or federal law, and the information was provided to the University under 42 U.S. C. 14071 and applicable federal guidelines.

C. Prior Consent Required In All Other Cases

1. UMD will not release PII in education records, or allow access to those records without prior consent from the student.
2. The consent must be in writing, signed by the student, and dated. The consent will remain in effect until rescinded by the student, or its purpose is achieved.
3. The student must specify the records to be disclosed, the identity of the recipient, and the purpose of the disclosure.
4. A copy of the record disclosed will be provided to the student upon request and payment of copying fees described above.

D. Record of Disclosures

1. **Maintenance of List**: UMD shall maintain a list of each request and each disclosure of PII with each student's education records. The list shall include:
   a. the parties who have requested and/or received the information; and
   b. the legitimate interest the parties had in requesting and/or receiving the information.
2. **Inspection of List**: The list of disclosures may be inspected by:
   a. the student;
   b. the official custodian of the record; and
   c. other UMD and governmental officials.
3. **Exceptions:** Disclosures in the following circumstances do not need to be recorded:
   a. disclosures to the student;
   b. disclosures pursuant to written consent;
   c. disclosures to school officials including instructional or administrative officials of UMD;
   d. disclosures of directory information; and
   e. disclosures related to judicial orders or lawfully issued subpoenas.

## VI. RIGHT TO FILE A COMPLAINT

A. Students have the right to file a complaint with the U.S. Department of Education concerning alleged failures by UMD to comply with the requirements of FERPA. The name and address of the office that administers FERPA is:

Family Policy Compliance Office
U.S. Department of Education
400 Independence Avenue, S.W.
Washington, D.C. 20202

# Appendix E: University of Maryland Policy on Smoking VI-8.10(A)

https://policies.umd.edu/general-administration/university-of-maryland-policy-on-smoking/

# Appendix F: University of Maryland Code of Academic Integrity III-1.00(A)

https://policies.umd.edu/academic-affairs/university-of-maryland-code-of-academic-integrity/

# Appendix G: Statute of Limitations for the Termination of Degree Programs

***Committee on Academic Procedures and Standards***
***Approved December 7, 1989***

The following policies apply to all undergraduate degree programs terminated at the University of Maryland at College Park at the beginning of the Spring, 1990 Semester and thereafter.

1. All students enrolled at the University of Maryland, College Park or at a Maryland community college program articulated with the terminated degree program during the semester in which the program is terminated must complete the major requirements of the terminated degree program within five calendar years of the date upon which the program is terminated. If only a few students are enrolled in a terminated program, a shorter time limit may be imposed based on a study of the academic records of all students enrolled in the program. If a shorter time period is imposed, all students enrolled in the program will be notified of its length.
2. Students who, prior to the termination date had been enrolled in the terminated program or a Maryland community college articulated with the terminated program, but who subsequently interrupt their studies at the University of Maryland, College Park or the community college for one or more semesters will be allowed to enter or re-enter the program only if a careful analysis of their records by the appropriate dean indicates they will be able to complete the major requirements of the terminated program within the remaining time period specified.
3. When a program is terminated the University of Maryland, College Park will make a good faith effort to notify those students who had interrupted their studies in that program. As part of that good faith effort, the University of Maryland at College Park will publish in its re-enrollment forms, catalogues, and schedules of classes a statement advising returning students that programs may have been terminated and that the student needs to check the current status of the program.
4. At the end of the time period specified for completion of major requirements after the termination date of the program, the relevant department or college will evaluate the records of each student enrolled in the program for fulfillment of departmental major requirements and will notify students whether they have completed these requirements. Such notice shall be in writing and sent to the student's last known addresses.
5. When a degree program is terminated, the university will send notification of the time limit for completion of the major requirements to all students enrolled in the program at that time. It will also attempt to send notification to students who interrupted their studies while enrolled in the program in the preceding three years, insofar as such students can reasonably be identified. This notification will be sent to the students' last known addresses on file with the university. Such notifications also will be sent to the Maryland community colleges having programs articulated with the terminated program.

# Appendix H: Policy on Student Classification for Admission and Tuition Purposes VIII-2.70

The policy below is current as of this publication. For more information and possible updates go to: https://www.usmd.edu/regents/bylaws/SectionVIII/VIII-2.70.pdf

(Approved by the Board of Regents August 28, 1990; Amended July 10, 1998; Amended November 27, 2000; Amended April 11, 2003; Amended June 23, 2006; Amended February 15, 2008; Amended October 24, 2014; Amended April 10, 2015; Amended February 17, 2017; Amended June 16, 2017; Amended April 19, 2019; Amended June 17, 2021; Amended June 17, 2022; Amended June 16, 2023; Amended June 14, 2024).

## I. POLICY

### A. Purpose

To extend the benefits of its system of higher education while encouraging the economical use of the State's resources,[1] it is the policy of the Board of Regents of the University System of Maryland (USM) to recognize the categories of in#state and out#of#state residency for the purpose of admission and assessing tuition at USM institutions.

### B. Qualification for In-State Status

Generally, to qualify for in#state status, prospective, returning, or current students must demonstrate that they are permanent Maryland residents. Under certain circumstances, as set forth in this Policy, students who are not permanent Maryland residents may qualify temporarily for in#state status. Students who do not qualify for in#state status under this Policy shall be assigned out#of#state status for admission and tuition purposes.

### C. Standard of Proof

Students seeking in#state status shall have the burden of proving by clear and convincing evidence that they satisfy the requirements and standards set forth in this Policy. Assignment of in#state or out#of#state status will be made by each USM institution upon a review of the totality of facts known by the institution or presented to it by the student.

[1] Annotated Code of Maryland, Education Article, §12-101.

## II. DETERMINATION OF RESIDENCY STATUS

### A. Criteria for Determination of Residency Status

An initial determination of residency status will be made at the time of admission and readmission based upon information provided by the student with the signed application certifying that the information provided is complete and correct. Additional information may be requested by the institution to clarify facts presented. To qualify for in#state status, the student must demonstrate that for at least 12 consecutive months immediately prior to and including the last date available to
register for courses for the semester/term for which the student seeks in#state status, the student had the continuous intent to reside in Maryland indefinitely and for a primary purpose other than that of attending an educational institution in Maryland. The student will demonstrate the requisite intent by satisfying all the following requirements for the 12#month period (or shorter period indicated):

1. Has continuously maintained primary living quarters in Maryland.
2. Has substantially all personal property, such as household effects, furniture, and pets in Maryland.

3. Has paid Maryland income tax on all taxable income, including all taxable income earned outside Maryland, and has filed a Maryland Resident Tax Return. If the student is a dependent for tax purposes, then the person who claims the student as a dependent shall have paid Maryland income tax on all taxable income, including all taxable income earned outside Maryland, and have filed a Maryland Resident Tax Return.
4. Has registered all owned or leased motor vehicles in Maryland for at least 12 consecutive months, if previously registered in another state. Students who have lived in Maryland for at least 12 consecutive months but who have had their motor vehicle(s) registered in Maryland for less than 12 months will be deemed to have satisfied this requirement if they can show evidence that their owned or leased motor vehicle(s) was (were) registered in Maryland within 60 days after moving to the state in accordance with Maryland Motor Vehicle Administration requirements.
5. Has possessed a valid Maryland driver's license for at least 12 consecutive months, if previously licensed to drive in another state. Students who have lived in Maryland for at least 12 consecutive months but who have held a Maryland driver's license for less than 12 months will be deemed to have satisfied this requirement if they can show evidence that their driver's license was issued in Maryland within 60 days after moving to the state in accordance with Maryland Motor Vehicle Administration requirements..
6. Receives no public assistance from a state other than the State of Maryland or from a city, county, or municipal agency other than one in Maryland.
7. Has the ability under Federal and Maryland law to live permanently and without interruption in Maryland.

### B. Presumption of Out-of-State Status

Either of the following circumstances raises a presumption that the student is residing in the State of Maryland primarily for the purpose of attending an educational institution and, therefore, does not qualify for in#state status under this Policy:

1. A student is attending school or living outside Maryland at the time of application for admission to a USM institution, or
2. A student is Financially Dependent on a person who is not a resident of Maryland. A student will be considered Financially Independent if the student provides 50
percent or more of the student's own living and educational expenses and has not been claimed as a dependent on another person's most recent tax returns.

## III. CHANGE IN CLASSIFICATION FOR TUITION PURPOSES

### A. Petition for Change in Classification for Tuition Purposes

After the initial determination is made, a student seeking a change to in# state tuition status must submit a Petition for Change in Classification for Tuition Purposes that includes all the information the student wishes the institution to consider. All information must be submitted by the institution's deadline for submitting a petition before or within the semester for which the student seeks reclassification. Only one Petition may be filed per semester.

### B. Criteria for Change in Tuition Status

A student seeking reclassification from out#of#state to in#state tuition status must demonstrate, by clear and convincing evidence, that for at least twelve (12) consecutive months immediately prior to and including the last date available to register for courses for the semester/term for which the student seeks in#state tuition status, the student had the continuous intent to

a) make Maryland the student's permanent home;

b) abandon the student's former home state;

c) reside in Maryland indefinitely; and

d) reside in Maryland primarily for a purpose other than that of attending an educational institution in Maryland.

A student will demonstrate the requisite intent by satisfying all the following requirements for a period of at least twelve (12) consecutive months (or for the shorter period of time indicated) immediately prior to and including the last date available to register for courses in the semester/term for which the student seeks in#state tuition status. Evidence of intent must be clear and convincing and will be evaluated not only by how completely the criteria are addressed, but also based upon the reliability, authenticity, credibility, and relevance of the evidence and the totality of facts known to the institution. The student must demonstrate (providing appropriate
documentation as necessary) that for the relevant period the student:

1. Continuously maintained his or her primary living quarters in Maryland.
2. Has substantially all of his or her personal property, such as household effects, furniture and pets, in Maryland.
3. Has paid Maryland income tax on all taxable income including all taxable income earned outside the state and has filed a Maryland Resident Tax Return. If the student is a dependent for tax purposes, then the person who claims the student as a dependent shall have paid Maryland income tax on all taxable income, including all taxable income earned outside Maryland, and have filed a Maryland Resident Tax Return.
4. Has registered all owned or leased motor vehicles in Maryland for at least 12 consecutive months, if previously registered in another state. Students who have lived in Maryland for at least 12 consecutive months but who have had their motor vehicle(s) registered in Maryland for less than 12 months will be deemed to have satisfied this requirement if they can show evidence that their owned or leased motor vehicle(s) was (were) registered in Maryland within 60 days after moving to the state in accordance with Maryland Motor Vehicle Administration requirements.
5. ) Has possessed a valid Maryland driver's license for at least 12 consecutive months, if previously licensed to drive in another state. Students who have lived in Maryland for at least 12 consecutive months but who have held a Maryland driver's license for less than 12 months will be deemed to have satisfied this requirement if they can show evidence that their driver's license was issued in Maryland within 60 days after moving to the state in accordance with Maryland Motor Vehicle Administration requirements.
6. Receives no public assistance from a state other than the State of Maryland or from a city, county or municipal agency other than one in Maryland.
7. Has the ability under Federal and Maryland law to live permanently without interruption in Maryland.
8. Has either not raised the presumption set forth in Section II.B above; or alternatively, if the student's circumstances have raised the presumption set forth in Section II.B above, the student has rebutted that presumption.

### C. Rebuttal Evidence to Support a Change in Tuition Status

If the information received by the institution about the student has raised the presumption set forth in Section II.B, the student bears the burden of rebutting the presumption set forth in Section II.B by presenting additional evidence of objectively verifiable conduct to rebut the presumption and show the requisite intent. Rebuttal evidence of intent must be clear and convincing and will be evaluated not only by how completely the criteria are addressed, but also based upon the reliability, authenticity, credibility and relevance of the evidence and the totality of facts known to the institution.

Evidence that does not document a period of at least twelve (12) consecutive months immediately prior to and including the last date available to register for courses in the semester/term for which the student seeks in# state tuition status is generally considered an unfavorable factor under this Policy. The absence of objective, relevant evidence is generally considered an unfavorable factor. A student's statement of intent to remain in Maryland in the future is generally not considered to be
objective evidence under this Policy.

For purposes of rebutting the presumption, additional evidence that will be considered includes, but is not limited to:

1. Source of financial support:
   a. Maryland employment and earnings history through sources beyond those incident to enrollment as a student in an educational institution, e.g., beyond
   support provided by work study, scholarships, grants, stipends, aid, student loans, etc. (Tuition costs will be considered as a student expense only to the extent tuition exceeds the amount of any educational scholarships, grants, student loans, etc.),
   or
   b. Evidence the student is Financially Dependent, for the previous 12 months, upon a person who is a resident of Maryland.
2. Substantial participation as a member of a professional, social, community, civic, political, athletic, or religious organization in Maryland, including professionally related school activities that demonstrate a commitment to the student's community or to the State of Maryland.
3. Registration as a Maryland resident with the Selective Service, if applicable.
4. Evidence that the student is married to a Maryland resident.
5. Evidence that the student attended schools in Maryland for grades K-12.
6. Evidence showing the student uses the student's Maryland address as the sole address of record for all purposes, including, for example, on health and auto insurance records, bank accounts, tax records, loan and scholarship records, school records, military records, leases, etc.
7. An affidavit from a person unrelated to the student that provides objective, relevant evidence of the student's conduct demonstrating the student's intent to reside in
   Maryland primarily for a purpose other than that of attending an educational institution in Maryland.
8. Evidence of life and employment changes that caused the student to relocate to Maryland for reasons other than primarily educational purposes (e.g., divorce, family relocation, taking care of a sick family member, etc.)
9. Voter registration in Maryland.

### D. Appeal

A student may appeal an adverse decision on a Petition for Change in Classification.

### E. Change in Circumstances Altering In-State Status

The student shall notify the USM institution in writing within fifteen (15) days of any change in circumstances which may alter in-state status. Failure to do so could result in retroactive charges for each semester/ term affected.

### F. Incomplete, Untimely, False or Misleading Information

If necessary information is not provided by the institution's deadline, the USM institution may, at its discretion, deny or revoke in#state status. In the event incomplete, false, or misleading information is presented, the USM institution may, at its discretion, revoke in#state status and take disciplinary action provided for by the institution's policies. Such action may include suspension or expulsion. In such cases, the institution reserves the right to retroactively assess all out#of#state charges for each
semester/term affected.

## IV. CRITERIA FOR TEMPORARY QUALIFICATION OF NON-RESIDENTS FOR IN-STATE STATUS

Non-residents with the following status shall be accorded the benefits of in-state status for the period in which they hold such status, if they provide clear and convincing evidence through documentation, by the institution's deadline for the semester for which they seek in-state status, showing that they fall within one of the following categories:

A. A full-time or part-time (at least 50 percent) regular employee of USM or a USM institution.

B. The spouse or Financially Dependent child of a full-time or part-time (at least 50 percent) regular employee of USM or a USM institution.

C. Active duty members of the Armed Forces of the United States as defined in 38 U.S.C. § 101(10) as the United States Army, Navy, Marine Corps, Air Force, Space Force, and Coast Guard, including the reserve components thereof, who are stationed in Maryland, reside in Maryland, or are domiciled in Maryland, or their spouse or financially dependent children, as provided in § 15-106.4 of the Education Article, Annotated Code of Maryland. Spouses and children who qualify for exemptions under this provision will retain in#state status for tuition purposes as long as they are continuously enrolled, regardless of whether the active duty member's station assignment, residence, or domicile remains in Maryland.

D. Veterans of the Armed Forces of the United States who provide documentation that they were honorably discharged and currently reside or are domiciled in Maryland, as provided in § 15-106.4 of the Education Article, Annotated Code of Maryland.

E. Veterans who live in Maryland and were discharged from a period of at least 90 days of service in the active military, naval, space, or air service and are pursuing a course of education with educational assistance under the Montgomery G.I. Bill ® (38 U.S.C. Ch. 30) or the Post#9/11 G.I. Bill® (38 U.S.C. Ch. 33), pursuant to 38 U.S.C. § 3679(c).[2] A veteran so described will continue to retain in#state status if the veteran is using educational benefits under either chapter 30 or chapter 33 of title 38, United States Code, and remains continuously enrolled (other than during regularly scheduled breaks between courses, semesters, or terms) at the same school.

F. Anyone who lives in Maryland, and:

1. Is using transferred Post-9/11 Bill ® benefits (38 U.S.C. §3319) and enrolls after the transferor's discharge or release from a period of at least 90 days of service in the active military, naval or air service; or
2. Is using transferred Post-9/11 Bill ® benefits (38 U.S.C. §3319) and the transferor is a member of the uniformed services who is serving on active duty;
3. Is using benefits under the Marine Gunnery Sergeant John David Fry Scholarship (38 U.S.C. §3311(b)(9))[5]; or
4. Is using benefits through the Survivors' and Dependents' Educational Assistance Program (DEA), (38 U.S.C. chapter 35) or
5. Is entitled to rehabilitation under 38 U.S.C. §3102(a).

An individual as described in this Section IV.F will continue to retain in# state status if the individual is using educational benefits under chapter 30, 31, 33, or 35 of title 38, United States Code, and remains continuously enrolled (other than during regularly scheduled breaks between courses, semesters, or terms) at the same school.

G. A member of the Maryland National Guard, as defined in the Public Safety Article of the Annotated Code of Maryland, who joined or subsequently serves in the Maryland National Guard to: (i) provide a critical military occupational skill; or (ii) be a member of the Air Force Critical Specialty Code as determined by the National Guard. (Maryland National Guard members may also qualify if they meet the criteria in section IV.C. above.)

H. For UMGC, only, a full-time active member of the Armed Forces of the United States on active duty, or his/her spouse.

I. A graduate assistant appointed through a USM institution for the semester/term of the appointment. Except through prior arrangement, this benefit is available only for enrollment at the institution awarding the assistantship.

J. A full-time public school teacher in the first year of employment by a Maryland local education agency, who resides in Maryland and meets the criteria for a residency waiver in § 15-106.2 of the Education Article, Annotated Code of Maryland.

K. The child of a Maryland public safety employee who is eligible for the Edward T. Conroy and Joan B. Cryor Scholarship under § 18-601(d)(3)(ii) of the Education Article, Annotated Code of Maryland.

L. A person who has completed all service hours in an AmeriCorps Program in Maryland or who has completed a service program under the Maryland Corps Program, pursuant to Title 9, subtitle 28 of the State Government Article, Annotated Code of Maryland, as provided in § 15-106.9 of the Education Article, Annotated Code of Maryland.

M. A person who has been certified by the Director of the Peace Corps as having served satisfactorily as a Peace Corps volunteer and who is domiciled in Maryland, as provided in § 15-106.11 of the Education Article, Annotated Code of Maryland.

N. Individuals, including undocumented immigrants, who do not meet the definition of nonimmigrant alien within the meaning of 8 U.S.C. § 1101(a)(15) and who meet all the criteria in § 15-106.8 of the Education Article, Annotated Code of Maryland.

O. Members of the U.S. Foreign Service who are on active duty for a period of more than 30 days and whose domicile or permanent duty station is in Maryland, and their spouses and dependents. Members and their spouses and dependents who qualify for in-state status will continue to hold in-state status while continuously enrolled at the institution, notwithstanding a subsequent change in the permanent duty station of the member to a location outside Maryland.

P. Citizens of the Federated States of Micronesia, the Republic of the Marshall Islands, or the Republic of Palau, as provided in the Consolidated Appropriations Act, 2024, Pub. L. No. 118-42, Div. G, Title II, § 209(b)(1)(E).

## V. ADDITIONAL PROCEDURES

Each USM institution shall develop and publish additional procedures to implement this Policy. Procedures shall provide that upon request, the institution's President or designee has the authority to waive any of the requirements in Sections II or III if it is determined that its application creates an unjust result. These procedures shall be filed with the Office of the Chancellor. The institution may require that a student file a petition under Section III.A and complete the petition process before requesting a waiver under this section.

[1] Annotated Code of Maryland, Educ. § 12#101.
[2] GI Bill® is a registered trademark of the U.S. Department of Veterans Affairs (VA). More information about education benefits offered by VA is available at the official U.S. government Web site at http://www.benefits.va.gov/gibill.

## VI. DEFINITIONS

A. Financially Dependent: For the purposes of this Policy, a financially dependent student is one who has been claimed as a dependent on another person's prior year tax returns or is a ward of the State of Maryland.

B. Financially Independent: For the purposes of this Policy, a financially independent student is one who provides 50 percent or more of the student's own living and educational expenses and has not been claimed as a dependent on another person's most recent tax returns.

C. Parent: A parent may be a natural parent, or, if established by a court order recognized under the law of the State of Maryland, an adoptive parent.

D. Guardian: A guardian is a person so appointed by a court order recognized under the laws of the State of Maryland.

E. Spouse: A spouse is a partner in a legally contracted marriage.

F. Child: A child is a natural child or a child legally adopted pursuant to a court order recognized under the law of Maryland.

G. Regular Employee: A regular employee is a person employed by USM or a USM institution who is assigned to a State budget line or who is otherwise eligible to enroll in a State retirement system. Examples of categories NOT considered regular employees are graduate students, contingent employees, and independent contractors.

H. . Continuous Enrollment for undergraduate, graduate, and professional students is defined by the institution in accordance with institutional and program requirements.

I. Armed Forces of the United States: As defined in 38 U.S.C.A. § 101(10) as the United States Army, Navy, Marine Corps, Air Force, and Coast Guard, including the reserve components thereof.

J. Uniformed Services of the United States: As defined in 38 U.S.C. § 3319, Armed Forces and the Commissioned Corps of the National Oceanic and Atmospheric Administration and of the Public Health Service.

K. Foreign Service of the United States: as defined in 22 U.S.C. § 3903.

# Appendix I: University of Maryland Policy on the Conduct of Undergraduate Courses and Student Grievance Procedure V-1.00(A)

https://policies.umd.edu/student-affairs/university-of-maryland-policy-on-the-conduct-of-undergraduate-courses-and-student-grievance-procedure/

# Appendix J: University of Maryland Procedures for Review of Alleged Arbitrary and Capricious Grading - Undergraduate Students III-1.20(B)

https://policies.umd.edu/academic-affairs/university-of-maryland-procedures-for-review-of-alleged-arbitrary-and-capricious-grading-undergraduate-students/

# Appendix K: Policy on Participation by Students in Class Exercises that Involve Animals

Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available. If no alternatives are available, the refusal to participate in required activities involving animals may result in a failing grade in the course. Departments including courses where animals are used must actively inform students of such courses, including, but not limited to, notices in the Catalog.

The University of Maryland, College Park campus, affirms the right of the faculty to determine course content and curriculum requirements. The University, however, also encourages faculty to consider offering alternatives to the use of animals in their courses. In each course, the instructor determines whether the use of animals in the classroom exercises will be a course requirement or optional activity. The following departments currently have courses that may require animals to be used in class activities: Animal Sciences, Human Nutrition and Food Systems, Microbiology, Poultry Science, Psychology, Veterinary Medicine, and Zoology.

***Committee on Academic Procedures and Standards***
***April 27, 1990***

# Appendix L: Completion of Interrupted Degree

Students whose registration at the University of Maryland, College Park, has lapsed for more than 10 years shall be required to complete a minimum of 15 credit hours at College Park after their return to campus in order to earn a baccalaureate degree.

Recommendations about courses needed to satisfy the remaining degree requirements will be made at the department level, with approval of the Dean's Office required. The reason for requiring these credits is that many fields change sufficiently in 10 years to require that students take current courses if they are to be awarded a current degree. Exceptions to the requirement for a minimum of 15 credits earned at College Park upon return to the campus can be recommended by the Deans for approval in the Office of the Vice President for Academic Affairs.

***College Park Senate***
***October 1995***

# Appendix M: University of Maryland Policy on the Collection, Use and Protection of ID Numbers VI-26.00(A)

The policy below is current as of this publication. For more information and possible updates go to: https://policies.umd.edu/general-administration/university-of-maryland-policy-on-the-collection-use-and-protection-of-id-numbers/

(Approved by the President May 31, 2005; Technical Amendment November 7, 2013)

## I. Purpose

The University of Maryland is dedicated to ensuring the privacy and proper handling of confidential information relating to students, faculty, staff and individuals associated with the University. Traditionally, the Social Security Number (SSN) has been used as a common “person” identifier and the key to University “person” databases. The purpose of this policy is to authorize the creation of new methods of unique identification that will replace reliance on the SSN and allow for easy identification of a person for University transactions.

## II. Policy

Use of the SSN as an identifier will be discontinued, except where required for employment, IRS reporting, Office of Institutional Research, Planning & Assessment, federal student financial aid processing, state and federal reporting and a limited number of other business transactions. While the SSN will be collected and retained as authorized by law, it will not be used for routine identification or authentication purposes. Instead, a unique, nine digit university identification number called U ID Number will be assigned to each individual. For computer access, individuals will also have a unique Directory ID. For complete authentication, these identifiers (U ID Number and Directory ID) are accompanied by the use of a PIN or password.

## III. Policy Implementation

1. The University of Maryland prohibits the use of a person’s SSN as a publicly visible identification number for University-related transactions, unless specifically required by law or business

necessity. A listing of currently approved uses is provided in Appendix A. This list is subject to change.

2. The University of Maryland will use SSN as a data element but not as a key for access to databases.
3. Each member of the University community will be assigned a unique identification number that will not be the same as nor derived from the individual's SSN. This number is called the U ID Number.
4. Software systems purchased or developed by the University of Maryland will not display a SSN either in read-only format or on print or other system output, unless authorized by law or business necessity.
5. Name and directory systems, purchased or developed by the University of Maryland, will be keyed for access by an individual's unique U ID Number, not the SSN.
6. When databases need to utilize SSN, they will use secure conversion tables or other technical mechanisms that automatically cross-reference SSN and other information within systems. In exceptional circumstances, it may be necessary to use SSN as an alternate search field. All such cases shall be referred to the data custodian (Registrar's Office for students, UHR for employees) who shall seek approval from the University Data Policy Advisory Committee (DPAC) DPAC has a strict procedure for reviewing and approving requests for the use of SSN in any campus application or database. Justifications must be submitted to the appropriate divisional DPAC representative for committee review and consideration of approval. In addition, any transmission of data containing SSN over any communication network must be transmitted using a secure methodology.
7. Systems or technology developed or purchased by the University of Maryland after the effective date of this policy shall comply with these provisions.
8. For computer access or login purposes, members of the University community will also be assigned a Directory ID. The Directory ID will be used as a standard identifier for all computer resource authentication purposes but individuals may also be allowed to authenticate by using their U ID Number.
9. Campus validation of University of Maryland photo ID cards will be by reference to either the holder's U ID Number or bar code.

Timeframe for Implementation: The University of Maryland recognizes that some of its major systems are currently keyed for access to SSN as an identifier and that the conversion of all systems will take time and resources. The expectation is that there will be a steady and purposeful movement away from dependency on SSN. Appropriate interim measures may be developed until such time as the conversion to U ID Numbers is complete.

"Legacy" Data: The University recognizes that the SSN must be retained and used as a person identifier in older "legacy" data pertaining to ex-students and ex-employees as it is impractical to assign U ID numbers to these individuals.

Protection of ID Data Held in Secondary or Derivative Data Files: Any University office that collects and maintains an individual's social security number in any media must: 1) Ensure that the number is stored in a secure and confidential environment; 2) eliminate using the number for any purpose except those specifically addressed in this policy; 3) begin a steady and purposeful movement away from its dependency on the SSN in performing its functions and processes; and 4) follow University guidelines for the retention and destruction of records containing the SSN.

Notification Requirement: Any University office that collects SSN from an individual must provide a disclosure statement approved by the Data Policy Advisory Committee. Notifications for students, employees, and affiliates/guests are provided in Appendix B.

## Appendix A

### Uses for Social Security Numbers (SSN)

(Subject to change)

**Employment:** The SSN is required for a variety of employment matters; such as tax withholding, FICA, Medicare, etc. SSN may also be used and maintained if it is supplied by an employee as documentation when completing the Federal I-9 Employment Authorization Form.

**Application and Receipt of Financial Aid:** Any student who applies for student aid by use of the federal Free Application For Student Assistance (FAFSA) is required to provide his SSN. Students are also required to provide SSNs when applying for student education loans. Tuition Remission: The SSN is required for state reporting of taxable tuition remission benefits received by employees, their spouses and dependents, and by graduate assistants. Veterans Administration Benefits: The SSN is required for enrollment verification and reporting on all Veterans Administration beneficiaries.

**IRS Reporting:** The SSN is used for producing federally required 1098-T forms, which report the amount of tuition paid to the University during the tax year. Copies of these forms are mailed to students each year, and the information reported to the IRS. In addition, the University reports the value of all taxable and non-taxable scholarships and grants awarded to non-resident aliens to the IRS.

**Inter-Institutional Communication and Information Exchange:** Many institutions, including postsecondary educational institutions, use the SSN as a student identifier. To ensure the accuracy of inter-institutional data exchanges (transcripts, transfer credit evaluations, USM ArtSys data base, MHEC, etc.) the SSN may be used for the exchange of information from student academic records between appropriate institutions including other colleges and universities.

**Tracking Name Changes of Students and Alumni:** The SSN is also used internally to track name changes of students and alumni of the University.

## Appendix B Required Disclosure Statements

### Student Notification

**"Use of Social Security Number (SSN) - Students**

Section 15-110 of the Education Article of the Annotated Code of Maryland prohibits the use of SSN on University identification cards. Section 7(b) of the Privacy Act of 1974 (5 U.S.C. 522a) and section 10-624 of the State Government Article of the Annotated Code of Maryland, also require that when any Federal, State, or local government agency requests an individual to disclose his or her Social Security Number (SSN), that individual must also be advised whether the disclosure is mandatory or voluntary, by what statutory or other authority the number is solicited, what use will be made of it, the specific consequences for failure to provide the information, whether the information is generally available for public inspection and whether the information is made available or transferred to or shared with any entity other than the University.

Accordingly, each applicant for admission is advised that disclosure of his or her SSN is required as a condition for making application to the University of Maryland for purposes of administering federal financial

aid programs and complying with various State and Federal reporting requirements including reporting to the IRS. The University may use a student's SSN to accurately report federally required data, to generate various federal tax and financial aid reports, and to ensure the accuracy of student data that is exchanged within the University of Maryland, between post-secondary education institutions, with the University System of Maryland and other outside entities as necessary or required for the conduct of legitimate University business and consistent with applicable law. The SSN will be maintained in a secure and confidential manner and not be re-disclosed for any other purpose.

The authority for requesting disclosure of a student's SSN is grounded in various federal laws including but not limited to: 42 USC 405c, affecting wage reporting and withholdings; 34 CFR 668.14 and 34 CFR 668.16, relating to student aid programs; and 26 CFR 1.6050S-1, addressing Internal Revenue Code reporting requirements pertaining to tuition payments.

In addition, it should be noted that the SSN of a parent, guardian or spouse of an applicant is also requested if the student claims dependency on that person for financial aid or residency for tuition purposes. A parent, guardian or spouse is advised that disclosure of his or her SSN is necessary for the above student purpose and failure to provide it may affect the student's financial aid or tuition status. A parent's, guardian's or spouse's SSN will only be used for the purpose for which it was collected and will not be maintained in any other system of records. A unique U ID Number is assigned to students as part of their initial application to the University and is used for all University identification purposes."

### Employee Notification

**"Use of Social Security Number (SSN) – Employees**

Section 7(b) of the Privacy Act of 1974 (5 U.S.C. 522a) and section 10-624 of the State Government Article of the Annotated Code of Maryland, requires that when any Federal, State, or local government agency requests an individual to disclose his or her social security number, that individual must also be advised whether the disclosure is mandatory or voluntary, by what statutory or other authority the number is solicited, what use will be made of it, the specific consequences for failure to provide the information, whether the information is generally available for public inspection and whether the information is made available or transferred to or shared with any entity other than the University .

Accordingly, each employee is advised that disclosure of his or her SSN is required as a condition of employment at the University of Maryland in complying with State and Federal employment matters including but not limited to, the withholding and reporting of State and Federal income tax, FICA, and Medicare insurance tax. Additionally, the SSN may be used and maintained, when supplied by an employee, as documentation for completing the Federal I-9 Employment Authorization Form. The employee's SSN will be used to accurately record state and federal required data as necessary or required for the conduct of legitimate University business and consistent with applicable law. This number will be maintained in a secure and confidential manner and not be re-disclosed for any other purpose.

The authority for requesting disclosure of an employee's SSN is grounded in various federal laws including but not limited to, 42 U.S.C. 405c, affecting wage reporting and withholdings.

Efforts to limit the use of SSN include the issuance of a unique U ID Number that is assigned to all employees as part of their initial employment and will be used for all University identification purposes."

### Affiliates Notification

**"Use of Social Security Number (SSN) – Affiliates/Guests who receive University services and are not students, employees, or non-paid appointees.**

Section 7(b) of the Privacy Act of 1974 (5 U.S.C. 522a) and section 10-624 of the State Government Article of the Annotated Code of Maryland, requires that when any Federal, State, or local government agency requests an individual to disclose his or her social security number, that individual must also be advised whether the disclosure is mandatory or voluntary, by what statutory or other authority the number is solicited, what use will be made of it, the specific consequences for failure to provide the information, whether the information is generally available for public inspection and whether the information is made available or transferred to or shared with any entity other than the University .

Accordingly, each affiliate/guest is advised that disclosure of his or her SSN is requested as a condition of applying for services from the University of Maryland for the purpose of administering those services. The University may use an affiliate or guest's SSN to accurately identify affiliates/guests, to coordinate services administered by different departments, and to ensure accuracy of data as necessary for the conduct of legitimate University Business and consistent with applicable law. The SSN will be maintained in a secure and confidential manner and not be re-disclosed for any other purpose.

A unique U ID Number is assigned to affiliates/guests as part of their initial request to receive University services and is used for all University identification purposes."

## Appendix N: Transfer Credit Policy Maryland Higher Education Commission (Title 13B)

*Administrative History*
*Effective date: December 4, 1995 (22:24 Md. R. 1901)*
*Regulations .02, .03, and .05 amended. Effective date: July 1, 1996 (23:13 Md. R. 946)*
*Authority: Education Article, 11-201 - 11-206, Annotated Code of Maryland*

Updates and text listed by individual articles 1 -10 can be found at: https://dsd.maryland.gov/regulations/Pages/13B.06.02.03.aspx.

## Appendix O: University of Maryland Policy on Promoting Responsible Action in Medical Emergencies V-1.00(J)

https://policies.umd.edu/student-affairs/university-of-maryland-policy-on-promoting-responsible-action-in-medical-emergencies/

# Appendix P: University of Maryland, College Park Immunization Policy V-1.00(H)

The policy below is current as of this publication. For more information and possible updates go to: https://policies.umd.edu/student-affairs/university-of-maryland-college-park-immunization-policy/.

(Approved by the President August 1, 1991; revised June 1, 2000; amended February 4, 2014)

## I. Policy

The University enforces a mandatory pre-matriculation immunization requirement to reduce the incidence and risk of vaccine-preventable disease in the university community. This policy meets the regulatory requirements of the State of Maryland Department of Health and Mental Hygiene. It is also consistent with the recommendations for pre-matriculation immunizations of the Advisory Committee on Immunization Practices (ACIP) of the U.S. Center for Disease Control and Prevention, and the American College Health Association.

## II. Applicability

This policy applies to all undergraduate and graduate degree and non-degree seeking students, regardless of credit hours, taking courses on campus at the University's main campus or any of its satellite locations. Students taking courses online, overseas, or at their place of employment if employment is off-campus, are exempt from this policy.

## III. Immunization Requirements

A. All students to whom this policy applies shall be required to provide proof of 2 MMR immunizations or 2 measles, 1 mumps, 1 rubella and tetanus/diphtheria/pertussis (Td/Tdap) within the past 10 years. These immunization requirements do not apply to students born before 1957. Students living in on-campus residence halls must also provide proof of meningococcal vaccine within 5 years of matriculation, or sign the waiver on the University's immunization form.

B. An immunization form must be completed and returned to the Health Center prior to the first day of classes.

C. Students in noncompliance with this requirement shall be unable to drop/add classes or register for their second semester. This restriction shall be lifted by the University Health Center upon receipt of the required information or the granting of an approved waiver as described in Section 4.

D. Exemptions:

1. A student who objects to immunization upon the grounds that it conflicts with his or her bonafide religious beliefs and practices may not be required to present a physician's certificate of immunization in order to register for classes. A religious exemption may be obtained by submitting the request to the Director of the Health Center. In case of an epidemic or disease outbreak, declared by the State of Maryland Secretary of Health and Mental Hygiene or his/her designee, the student must be immunized or not attend classes or functions on campus until the outbreak has resolved.
2. A student may be exempted from an individual vaccine-specific immunization requirement if he or she presents a written statement from a licensed physician or a local deputy state health officer indicating that immunization is medically contraindicated. The physician's statement shall state whether the contraindication is permanent or temporary. If temporary, the physician must provide a date by which the student will receive the vaccine and provide documentation when the immunization has been completed. Should there be an epidemic or disease outbreak that is pertinent to the student's immunization status, the student cannot attend classes or functions on campus until the outbreak has resolved.

# Appendix Q: Policy on Student Social Media Privacy V-1.20

https://www.usmd.edu/regents/bylaws/SectionV/V120.pdf

# Appendix R: Policy on Academic Achievement in Intercollegiate Athletics V-2.20

https://policies.umd.edu/student-affairs/policy-on-academic-achievement-in-intercollegiate-athletics/

# Appendix S: University of Maryland Disability & Accessibility Policy and Procedures VI-1.00(D)

https://policies.umd.edu/general-administration/university-of-maryland-disability-accessibility-policy-and-procedures/

# Appendix T: University of Maryland Policy on Excused Absence V-1.00(G)

https://policies.umd.edu/student-affairs/university-of-maryland-policy-on-excused-absence/

# Appendix U: University of Maryland Grading Symbols and Notations Used on Academic Transcripts III-6.20(A)

https://policies.umd.edu/academic-affairs/university-of-maryland-grading-symbols-and-notations-used-on-academic-transcripts/

# Appendix V: University of Maryland, College Park Policy and Procedures on Academic Clemency III-1.30(A)

https://policies.umd.edu/academic-affairs/university-of-maryland-college-park-policy-and-procedures-on-academic-clemency/

## Appendix W: University of Maryland Policy and Procedures Concerning Mid-Term Grades for Undergraduate Students III-6.00(B)

https://policies.umd.edu/academic-affairs/university-of-maryland-policy-and-procedures-concerning-mid-term-grades-for-undergraduate-students/

## Appendix X: Policy on Students Who Are Called to Active Military Duty During a National or International Crisis or Conflict V-7.00

https://www.usmd.edu/regents/bylaws/SectionV/V700.html

# APPROVED COURSES

## Course Numbering System

The first digit of the course number determines the level of the course, and the last two digits identify the course. Courses ending with the numeral 8 or 9 are the only courses that are repeatable for credit. Course levels are designated as follows:

- 000-099: Non-credit courses
- 100-199: Courses primarily for first-year students
- 200-299: Courses primarily for sophomore students
- 300-399: Junior/Senior courses (not acceptable for credit toward graduate degrees)
- 400-499: Junior/Senior courses (acceptable for credit toward some graduate degrees)
- 500-599: Professional school courses (Dentistry, Law, Medicine) or post-baccalaureate course (not for graduate degree credit)
- 600-898: Courses restricted to graduate students
- 799: Master's Thesis credit
- 899: Doctoral Dissertation credit

### A


- AAAS - African American and Africana Studies (p. 541)
- AASP - African American Studies (p. 541)
- AAST - Asian American Studies (p. 545)
- ABRM - Anti-Black Racism (p. 548)
- AGNR - Agriculture and Natural Resources (p. 548)
- AGST - Agricultural Science and Technology (p. 549)
- AMSC - Applied Mathematics & Scientific Computation (p. 550)
- AMST - American Studies (p. 551)
- ANSC - Animal Science (p. 554)
- ANTH - Anthropology (p. 559)
- AOSC - Atmospheric and Oceanic Science (p. 564)
- ARAB - Arabic (p. 567)
- ARCH - Architecture (p. 570)
- AREC - Agricultural and Resource Economics (p. 574)
- ARHU - Arts and Humanities (p. 577)
- ARHX - Art History & Archaeology Education Abroad (p. 580)
- ARMY - Army (p. 581)
- ARSC - Air Science (p. 582)
- ARTH - Art History & Archaeology (p. 583)
- ARTT - Art Studio (p. 586)
- ARTX - Art Studio Education Abroad (p. 589)
- ARUX - Arts and Humanities Education Abroad (p. 589)
- ASTR - Astronomy (p. 590)


### B


- BCHM - Biochemistry (p. 592)
- BIOE - Bioengineering (p. 592)
- BIOM - Biometrics (p. 596)
- BMGT - Business and Management (p. 596)
- BSCI - Biological Sciences Program (p. 606)
- BSCV - CIVICUS (p. 614)
- BSGC - Global Communities (p. 614)
- BSOS - Behavioral and Social Sciences (p. 615)
- BSST - Terrorism Studies (p. 616)


### C


- CCJS - Criminology and Criminal Justice (p. 619)
- CHBE - Chemical and Biomolecular Engineering (p. 622)
- CHEM - Chemistry (p. 627)
- CHIN - Chinese (p. 630)
- CHSE - Counseling, Higher Education, and Special Education (p. 632)
- CINE - Cinema and Media Studies (p. 633)
- CINX - Cinema and Media Studies Education Abroad (p. 637)
- CLAS - Classics (p. 638)
- CLAX - Classics Education Abroad (p. 641)
- CMLT - Comparative Literature (p. 641)
- CMLX - Comparative Literature Education Abroad (p. 642)
- CMSC - Computer Science (p. 642)
- COMM - Communication (p. 648)
- COMX - Communication Education Abroad (p. 653)
- CPBE - College Park Scholars-Business, Society, and Economy (p. 653)
- CPCV - College Park Scholars-Civic Engagement for Social Good (p. 654)
- CPDJ - College Park Scholars-Data Justice (p. 654)
- CPET - College Park Scholars-Environment, Technology & Economy (p. 654)
- CPGH - College Park Scholars-Global Public Health (p. 655)
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### E


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## F

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## H

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- HHUM - Honors Humanities (p. 787)
- HISP - Historic Preservation (p. 788)
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- HLSA - Health Services Administration (p. 801)
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## I

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- IMDM - Immersive Media Design (p. 818)
- IMMR - Immigration Studies (p. 820)
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- INST - Information Studies (p. 824)
- ISRL - Israel Studies (p. 832)
- ITAL - Italian (p. 834)
- ITAX - Italian Education Abroad (p. 836)
- IVSP - Individual Studies Program (p. 837)

## J

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- JOUR - Journalism (p. 839)
- JWST - Jewish Studies (p. 843)

## K

- KNES - Kinesiology (p. 849)
- KORA - Korean (p. 854)

## L

- LACS - Latin American and Caribbean Studies (p. 855)
- LARC - Landscape Architecture (p. 856)
- LASX - Certificate in Latin American Studies Education Abroad (p. 860)
- LATN - Latin (p. 860)
- LBSC - Library Science (p. 860)
- LEAD - Leadership Education and Development (p. 861)
- LGBT - Lesbian Gay Bisexual Transgender Studies (p. 861)
- LGBX - Lesbian Gay Bisexual Transgender Studies Education Abroad (p. 863)
- LING - Linguistics (p. 863)

## M

- MATH - Mathematics (p. 865)
- MEES - Marine-Estuarine-Environmental Sciences (p. 870)
- MIEH - Maryland Institute for Applied Environmental Health (p. 870)
- MITH - Maryland Institute for Technology in the Humanities (p. 872)
- MLAW - MPower Undergraduate Law Programs (p. 872)
- MLSC - MD Language Science Ctr (p. 873)
- MUED - Music Education (p. 873)
- MUET - Ethnomusicology (p. 875)
- MUSC - School of Music (p. 875)
- MUSP - Music Performance (p. 879)

## N


- NAVY - Navy (p. 880)
- NEUR - Neuroscience (p. 881)
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## P


- PEER - Health Center (p. 884)
- PERS - Persian (p. 886)
- PHIL - Philosophy (p. 888)
- PHIX - Philosophy Education Abroad (p. 893)
- PHPE - Philosophy, Politics, and Economics (p. 893)
- PHPX - Philosophy, Politics, and Economics Education Abroad (p. 894)
- PHSC - Public Health Science (p. 894)
- PHYS - Physics (p. 896)
- PLCY - Public Policy (p. 901)
- PLSC - Plant Sciences (p. 903)
- PORT - Portuguese (p. 907)
- PSYC - Psychology (p. 908)


## R


- RDEV - Real Estate Development (p. 914)
- RELS - Religious Studies (p. 915)
- RELX - Religious Studies Education Abroad (p. 622)
- RUSS - Russian (p. 917)


## S


- SLAA - Second Language Acquisition and Application (p. 919)
- SLLC - School of Languages, Literatures and Cultures (p. 919)
- SLLX - School of Languages, Literatures & Cultures Education Abroad (p. 922)
- SMLP - Southern Management Leadership Program (p. 923)
- SOCY - Sociology (p. 924)
- SPAN - Spanish (p. 930)
- SPAX - Spanish Education Abroad (p. 938)
- SPHL - Public Health (p. 940)
- STAT - Statistics and Probability (p. 941)
- SURV - Survey and Data Science (p. 943)


## T


- TDPS - Theatre, Dance and Performance Studies (p. 943)
- THET - Theatre (p. 944)
- THEX - Theatre Education Abroad (p. 949)
- TLPL - Teaching and Learning, Policy and Leadership (p. 950)
- TLTC - Teaching and Learning Transformation Center (p. 957)


## U


- UMEI - Maryland English Institute (p. 958)
- UNIV - University Courses (p. 958)
- URSP - Urban Studies and Planning (p. 960)
- USLT - Latina/o Studies (p. 960)


## W


- WEID - Words of Engagement Intergroup Dialogue Program (p. 961)
- WGSS - Women, Gender, and Sexuality Studies (p. 961)
- WMSX - Women's Studies Education Abroad (p. 967)


# AAAS - African American and Africana Studies

**AAAS271 Monsters and Racism: Black Horror and Speculative Fiction (3 Credits)**
The previous decade has been considered a renaissance for Black Horror. From Get Out to Lovecraft Country, the genre has enjoyed unprecedented mainstream media buzz and accolades. This course looks at contemporary Black horror and speculative fiction as cultural texts which put into question our notions of human(e) and inhuman(e) through critiques of white supremacy and accompanying oppressions. Students will learn a host of critical skills through close reading and analysis of literature and film by Black creators such as Jordan Peele, Misha Green, Toni Morrison, Jewelle Gomez, and Octavia Butler. With the ability to interpret cultural texts using literary criticism, film analysis, history, cultural studies, ethnic studies, feminist theory, and the social sciences, students will connect these texts to continuing historical and contemporary issues of racial and cultural oppression such as medical discrimination, policing and criminalization, misogynoir, and racialized capitalism.
**Cross-listed with:** WGSS271, ENGL289J.
**Credit Only Granted for:** AAAS271, ENGL289J, HONR299Y, HNUH238W, WGSS271 or WGSS298W.
**Formerly:** HNUH238W.

# AASP - African American Studies

**AASP100 Introduction to African American Studies (3 Credits)**
Significant aspects of the history of African Americans with particular emphasis on the evolution and development of black communities from slavery to the present. Interdisciplinary introduction to social, political, legal and economic roots of contemporary problems faced by blacks in the United States with applications to the lives of other racial and ethnic minorities in the Americas and in other societies.

**AASP101 Public Policy and the Black Community (3 Credits)**
The impact of public policies on the black community and the role of the policy process in affecting the social, economic and political well-being of minorities. Particular attention given to the post-1960 to present era.
**Formerly:** AASP300.

**AASP187 The New Jim Crow: African-Americans, Mass Incarceration and the Prison Industrial Complex (3 Credits)**
Students will examine the birth of the racial caste system following the abolition of slavery, the parallels between the racial hierarchy of the Jim Crow system and contemporary mass incarceration, and the rise of the prison industrial complex as a multi-billon business which thrives on the oppression of low-income populations and poor communities of color.
**Recommended:** AASP100.

**AASP200 African Civilization (3 Credits)**
A survey of African civilizations from 4500 B.C. to present. Analysis of traditional social systems. Discussion of the impact of European colonization on these civilizations. Analysis of the influence of traditional African social systems on modern African institutions as well as discussion of contemporary processes of Africanization.

**AASP202 Black Culture in the United States (3 Credits)**
The course examines important aspects of African American life and thought which are reflected in African American literature, drama, music and art. Beginning with the cultural heritage of slavery, the course surveys the changing modes of black creative expression from the 19th-century to the present.

**AASP210 Intro to Research Design and Analysis in African American Studies (3 Credits)**
Introduces students to quantitative and qualitative research methods used in social science with a focus on Black populations and African American Studies Research. Uses practical exercises, such as class surveys and mock focus groups, to examine fundamental concepts of the research process from conceptualization of research questions to interpretation of data and research articles. The course is designed for undergraduate students with little or no background knowledge in social science research methods.

**AASP211 Get Out: The Sunken Place of Race Relations in the Post-Racial Era (3 Credits)**
Prevailing thought suggests that we live in an era that is post-racial, particularly after the election of Barack Obama. Media often serves to drive our assessment of where our nation stands on issues like race, gender and sexuality. This course uses the film Get Out to delve into the production, evolution and significance of race in present day America. The course will engage multiple forms of media to investigate life in "Post-Racial" America, including but not limited to the role of stereotypes, interracial relationships, police-community relations, etc.
**Credit Only Granted for:** AASP298G or AASP211.
**Formerly:** AASP298G.

**AASP230 Social (In)Justice and African-American Health and Well-Being (3 Credits)**
African Americans suffer worse outcomes than non-Hispanic whites on nearly every health measure and outcomes that link to overall well-being like depressive symptoms or homicides. Health disparities are experienced by other underrepresented minority groups, but because of the unique historic and current experiences of African Americans, the determinants and solutions to African American health disparities are unique. The premise of this course is that African American health disparities are due to social injustices perpetuated on the institutional level that have permeated the lived experiences of African Americans leading to racial disparities in health and well-being. As such, the solutions on the both policy, and community, level must have a social justice approach.

**AASP255 African-American History, 1865 - Present (3 Credits)**
An introductory course in the African-American experience in the United States from 1865 to the present. Topics include the aftermath of the Civil War on US race relations, the rise of segregation, northern migration, World War I and II, Civil Rights Movements, and the Black Power Movement.
**Cross-listed with:** HIST255.
**Credit Only Granted for:** HIST255, AASP255 or AASP298A.

**AASP258 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**AASP260 Africa in World Politics (3 Credits)**
Introduction to the politics of Africa, especially Sub-Saharan Africa, on the world stage from the colonial period era to recent push towards democracy in Africa and the rise of religious extremism. It also engages such themes as culture, religion and progress, dictatorship, former colonial powers and international influence, etc.

**AASP263 Introduction to Black Women's Studies (3 Credits)**
Interdisciplinary exploration of Black women, culture and society in the United States. Drawn primarily from the social sciences and history with complementary material from literature and the arts.
**Cross-listed with:** WGSS263.
**Credit Only Granted for:** WMST263, AASP298I, WGSS263 or AASP263.
**Formerly:** WMST263.

**AASP264 Quare/Queer Contentions: Exploration of Sexualities in the Black Community (3 Credits)**
Centering the subjectivities of queer people of color generally and more specifically, Black people (as the word "quare" invites us to do), Quare/Queer Contentions takes up key moments within the history of the Black community and asks us to consider the work and presence of LGBTQ people in these moments. The course also contends with the everyday experiences of LGBTQ subjects in the Black community. Quare/Queer Contentions, therefore, interrogates the material realities of Black queer people in the context of family, religion, cultural/creative work, among others. Interdisciplinary in orientation, the course will employ primary and secondary texts, film, art, autobiographical narratives and policy data.
**Cross-listed with:** LGBT264, WGSS264.
**Credit Only Granted for:** LGBT264, AASP264, WMST264 or WGSS264.

**AASP265 Constructions of Manhood and Womanhood in the Black Community (3 Credits)**
Investigates the ways that African Americans are represented and constructed in public and private spheres and explores the social constructions and representations of Black manhood and womanhood from various disciplinary perspectives.
**Cross-listed with:** WGSS265.
**Credit Only Granted for:** WMST265, AASP298B, WGSS265 or AASP265.
**Formerly:** WMST265.

**AASP274 Creative Writing Through The Eyes of African Americans: A Beginning Workshop (3 Credits)**
Introduction to theory and practice of writing fiction, drama and poetry, with an emphasis on African American literary models. Critical reading, exercises and workshop discussions with continual reference to modeling, drafting, and revising as necessary stages in a creative process.
**Restriction:** Must not have completed ENGL271, ENGL274, ENGL294,or AASP274. Cross-listed with ENGL274.
**Credit Only Granted for:** ENGL274 or AASP274.

**AASP297 Research Methods in African American Studies (3 Credits)**
Introduces African American Studies majors to the basic research skills, methodologies, sources, and repositories for studying African Diaspora. Students will be required to select a research topic, write a research proposal, develop an annotated bibliography, and in the process will be prepared for completing their senior thesis or other significant writing projects necessary to fulfill the requirements of the major.
**Prerequisite:** AASP101 or AASP202.
**Restriction:** Must be in African American Studies program.
**Credit Only Granted for:** AASP297 or AASP299R.
**Formerly:** AASP299R.

**AASP298 Special Topics in African American Studies (3 Credits)**
An introductory multi-disciplinary and inter-disciplinary educational experience to explore issues relevant to black life, cultural experiences, and political, economic, and artistic development.
**Repeatable to:** 6 credits if content differs.

**AASP298C African Civilization to 1800 (3 Credits)**
Survey of the principal developments in the history and culture of the peoples of African descent in colonial North America and the United States to 1865. Examines the African past, the Atlantic slave trade, variation in slavery, the growth of free black communities, the transformations of families and cultural forms, and patterns of resistance.
**Cross-listed with:** HIST254.
**Credit Only Granted for:** HIST254 or AASP298C.

**AASP298L African-American Literature and Culture (3 Credits)**
An exploration of the stories black authors tell about themselves, their communities, and the nation as informed by time and place, gender, sexuality, and class. African American perspective themes such as art, childhood, sexuality, marriage, alienation and mortality, as well as representations of slavery, Reconstruction, racial violence and the Nadir, legalized racism and segregation, black patriotism and black ex-patriots, the optimism of integration, and the prospects of a post-racial America.
**Cross-listed with:** ENGL234.
**Credit Only Granted for:** ENGL234 or AASP298L.

**AASP298M Martin Luther King Jr. (3 Credits)**
Examines the life and work of Martin Luther King, Jr. We immediately rethink the image of King who liberals and conservatives construct as a dreamer of better race relations. We engage the complexities of an individual, who articulated a moral compass of the nation, to explore racial justice in post-World War II America. This course gives special attention to King's post-1965 radicalism when he called for a reordering of American society, an end to the war in Vietnam, and supported sanitation workers striking for better wages and working conditions. Topics include King's notion of the "beloved community", the Social Gospel, liberalism, "socially conscious democracy", militancy, the politics of martyrdom, poverty and racial justice, and compensatory treatment. Primary sources form the core of our readings.
**Cross-listed with:** HIST108C, AMST189C.
**Credit Only Granted for:** HIST108C, AASP298M, or AMST189C.

**AASP299 Selected Topics in African American Studies (1-3 Credits)**
An introductory multi-disciplinary academic exploration of the cultural, political, and economic issues relevant to Africans and African-Americans.
**Repeatable to:** 6 credits if content differs.

**AASP301 Applied Policy Analysis and the Black Community (3 Credits)**
Development and application of the tools needed for examining the effectiveness of alternative policy options confronting minority communities. Review policy research methods used in forming and evaluating policies. Examination of the policy process.
**Prerequisite:** AASP101.
**Recommended:** Completion of one semester of statistics is recommended.

**AASP303 Computer Applications in African American Studies (3 Credits)**
Introduction to statistics and database processing software used in model estimation and simulation in policy analysis. Special emphasis on applications for applied research on policy problems confronting minority communities.
**Prerequisite:** STAT100, MATH107, MATH111, or SOCY201; or students who have taken courses with comparable content may contact the department.

**AASP305 Theoretical, Methodological and Policy Research Issues in African American Studies (3 Credits)**
Theories and concepts in the social and behavioral sciences relating to problems in minority communities. Issues include validity and soundness of theoretical arguments, epistemological questions of various methodologies and the relationship between policy making and policy research.
**Prerequisite:** AASP301; and (STAT100, MATH111, PSYC200, BMGT230, or SOCY201). Or students who have taken courses with comparable content may contact the department.
**Formerly:** AASP401.

**AASP310 African Slave Trade (3 Credits)**
The relationship of the slave trade of Africans to the development of British capitalism and its industrial revolution; and to the economic and social development of the Americas.
**Prerequisite:** AASP202 or AASP100; or permission of BSOS-African American Studies department.
**Formerly:** AASP311.

**AASP313 Black Women in United States History (3 Credits)**
Black American women's history from slavery to the present. Focused on gaining a fuller understanding of the effect of race, class and gender on the life cycles and multiple roles of Black women as mothers, daughters, wives, workers and social-change agents.
**Cross-listed with:** WGSS314.
**Restriction:** Sophomore standing or higher.
**Credit Only Granted for:** AASP313, WMST314 or WGSS314.
**Formerly:** WMST314.

**AASP317 Black in Latin America and the Caribbean (3 Credits)**
The goal of this course is to have an understanding of race, color, and blackness across the Americas. We will compare and contrast forms of racial categorization, discrimination, and ideologies, whether in the form of nation-building projects, addressing racial inequality, or sexuality and family formation. We will draw primarily on social science perspectives, including the work of sociologists and political scientists.

**AASP320 Poverty and African American Children (3 Credits)**
The United States has high levels of child poverty compared to other industrialized nations. Poverty rates are particularly high among African American children. This course focuses on how poverty and race intersect to influence the development of children and youth. Specific topics that we will consider include definitions of poverty, theories about the causes of poverty, racial disparities in child poverty, family functioning in the context of poverty, neighborhood influences, risk and protective processes, and social policies and programs designed to mitigate the impact of poverty.
**Credit Only Granted for:** AASP320 or AASP298P.
**Formerly:** AASP298P.

**AASP358 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**AASP360 Issues in African Development (3 Credits)**
An introduction to the study of development on the African continent. Students will have an opportunity to think critically about the ways in which Africa is portrayed in the academic literature, popular press, and media. Issues of focus include population dynamics, gender, health, migration, HIV/AIDS, and globalization with particular attention paid to the role of culture.
**Credit Only Granted for:** AASP398D, GEOG398A, GVPT359F, SOCY398Y, or AASP360.
**Formerly:** AASP398D.

**AASP361 Caribbean Women (3 Credits)**
An interdisciplinary analysis of the lives and experiences of women across the Caribbean region, through an examination of their roles in individual, national, social and cultural formations. Special emphasis on contemporary women's issues and organizations.
**Cross-listed with:** WGSS360.
**Credit Only Granted for:** WGSS360, WMST360 or AASP361.
**Formerly:** WMST360.

**AASP371 Black Feminist Thought (3 Credits)**
Examines the ideas, words and actions of Black women writers, speakers, artists, and activists in the United States.
**Prerequisite:** 1 course in AASP; or 1 course in WGSS.
**Cross-listed with:** WGSS370.
**Credit Only Granted for:** WMST370, WGSS370 or AASP371.
**Formerly:** WMST370.

**AASP386 Experiential Learning (3-6 Credits)**
**Restriction:** Permission of BSOS-African American Studies department; and junior standing or higher.

**AASP395 Fundamentals of Quantitative Research in Socio-Cultural Perspective (3 Credits)**
Introduction to quantitative methods for African American Studies majors in the cultural and social analysis concentration. Basics of survey design and experimental design and data analysis and use of statistical software programs.
**Restriction:** Must be in African American Studies program; and junior standing or higher.

**AASP396 Independent Study Non-Thesis Option (3 Credits)**
A research seminar that allows African American Studies majors to complete an independent study research project in lieu of completing the AASP397: Senior Thesis. Students will examine various concepts of race, gender, labor and ethnicity in the seminar lecture component to be applied toward their specific research projects.
**Prerequisite:** AASP386 and AASP297.
**Restriction:** Must be in African American Studies program.
**Credit Only Granted for:** AASP396 or AASP397.

**AASP397 Senior Thesis (3 Credits)**
Directed research in African American Studies resulting in the completion and defense of a senior thesis.
**Restriction:** Permission of BSOS-African American Studies department.

**AASP398 Selected Topics in the African Diaspora (3 Credits)**
Analysis of the historical experiences and cultures of Africans in the diaspora.
**Repeatable to:** 6 credits if content differs.

**AASP399 Research in African-American Studies (1-3 Credits)**
African American Studies research labs are the settings in which the most recent scholarly work of each faculty member takes place with the enterprise of conducting and disseminating research. Faculty members operate as the team leader and faculty mentor working with undergraduate students around a specific research topic or project. Students will have the opportunity to assist with reviewing literature, data gathering, data management, coding analysis, and the preparation of conference presentations and scholarly publications while advancing their own scholarship and interests, cultivating integrative skills, and gain training in a specialized aspect of the African American Studies discipline, which may not be otherwise available from other experiences on campus.
**Prerequisite:** Two of the following courses: AASP100, AASP101, AASP200, or AASP202.
**Recommended:** AASP210 or equivalent.
**Restriction:** Must be in the Africa-American Studies major; and must have completed 30 credits; and must have earned a minimum cumulative GPA of 2.00.
**Repeatable to:** 6 credits.

**AASP400 Directed Readings in African American Studies (3 Credits)**
The readings will be directed by the faculty of African American Studies. Topics to be covered will be chosen to meet the needs and interests of individual students.
**Prerequisite:** AASP202 or AASP100.

**AASP401 Research Directions in African-American Studies (3 Credits)**
Utilizing a pro seminar format, this course offers an overview of recent research on the experiences of African Americans and the African diaspora. The course will cover selective topics from research portfolios of department faculty related to the status of African Americans and the diaspora across a number of topics. Students will read recent original research studies and discuss with the authors both the theoretical underpinnings of the research, the methods and evaluate the interpretations. This course fulfills the capstone requirement for African American studies majors and certificate students by providing an opportunity to consolidate and integrate a range of ideas encountered in the curriculum.
**Restriction:** Must have earned a minimum of 90 credits; and must be major in African-American Studies.

**AASP402 Classic Readings in African American Studies (3 Credits)**
Classic readings of the social, economic and political status of blacks and other minorities in the United States and the Americas.
**Prerequisite:** AASP202 or AASP100.

**AASP411 Black Resistance Movements (3 Credits)**
A comparative study of the black resistance movements in Africa and America; analysis of their interrelationships as well as their impact on contemporary pan-Africanism.
**Prerequisite:** AASP100.

**AASP413 Gentrification: Have You Met the New Neighbors?: Issues of Belonging and Displacement in Urban Areas (3 Credits)**
Explores and considers current scholarship on the history, modes and implications of the process of gentrification in various areas within the United States. The course will engage with history, culture, and policy factors related to the redevelopment of urban areas. Course texts will be interdisciplinary in their methodology and genre, and will include themes of race, gender, and class. These texts, combined with student engagement, class discussion, and directed assignments will help to develop a theoretical framework for the understanding of gentrification as systematic, profound and in most if not all cases, irreversibly detrimental.

**AASP441 Science, Technology, and the Black Community (3 Credits)**
Scientific knowledge and skills in solving technological and social problems, particularly those faced by the black community. Examines the evolution and development of African and African American contributions to science. Surveys the impact of technological changes on minority communities.
**Prerequisite:** HIST255, AASP202, or AASP100; or permission of BSOS-African American Studies department.

**AASP443 Blacks and the Law (3 Credits)**
The relationship between black Americans and the law, particularly criminal law, criminal institutions and the criminal justice system. Examines historical changes in the legal status of blacks and changes in the causes of racial disparities in criminal involvement and punishments.
**Prerequisite:** HIST255, AASP202, or AASP100; or permission of BSOS-African American Studies department.

**AASP468 Special Topics in Africa and the Americas (3 Credits)**
Cultural, historical and artistic dimensions of the African experience in Africa and the Americas.
**Repeatable to:** 6 credits if content differs.

**AASP478 Humanities Topics in African American Studies (3 Credits)**
Advanced studies in the humanities, often requiring prerequisites, focusing on the literary, artistic and philosophical contributions of Africans and African Americans.
**Repeatable to:** 6 credits if content differs.

**AASP479 Special Research in African-American Studies (1-9 Credits)**
Supervised research activity within the African American Studies Department. This course is for both majors and non-majors who seek to work for a faculty member on their research project(s) and/or work in their research lab as a Research Assistant (RA). The purpose of this course is to expose undergraduate students to theories and methods used to understand the lives and experiences of Black people across the diaspora via hands-on/applied research experience. A faculty member must agree to supervise your research activity before students can enroll for course credit.
**Recommended:** AASP210.
**Restriction:** Permission of BSOS- African American Studies department; and sophomore standing or higher.
**Repeatable to:** 9 credits.

**AASP493 Feminist and Nationalist Thought in Black Communities (3 Credits)**
The historical and theoretical foundations of feminist and nationalist thought in Black Communities will be examined. Further, we will discover why feminist and nationalist thought has been routinely ignored or misrepresented as disparate, if not oppositional, themes in Black intellectual and political life.
**Prerequisite:** AASP101 or AASP100.
**Credit Only Granted for:** AASP493 or AASP499W.
**Formerly:** AASP499W.

**AASP498 Special Topics in Black Culture (3 Credits)**
Advanced study of the cultural and historical antecedents of contemporary African and African American society. Emphasis on the social, political, economic and behavioral factors affecting blacks and their communities. Topics vary.
**Prerequisite:** AASP202 or AASP100.
**Repeatable to:** 6 credits if content differs.

**AASP499 Advanced Topics in Public Policy and the Black Community (3 Credits)**
Examination of specific areas of policy development and evaluation in black and other communities. Application of advanced tools of policy analysis, especially quantitative, statistical and micro-economic analysis.
**Prerequisite:** AASP301; or permission of BSOS-African American Studies department.
**Repeatable to:** 6 credits if content differs.

# AAST - Asian American Studies

**AAST200 Introduction to Asian American Studies (3 Credits)**
The aggregate experience of Asian Pacific Americans, from developments in the countries of origin to their contemporary issues. The histories of Asian Pacific American groups as well as culture, politics, the media, and stereotypes, viewed from an interdisciplinary perspective.
**Cross-listed with:** AMST298C.
**Credit Only Granted for:** AAST200 or AMST298C.

**AAST201 Asian American History (3 Credits)**
Introduction to the history of Asian Americans and Asians in the United States and the Americas and to the field of Asian American Studies, from an interdisciplinary perspective. Topics include theories of race and ethnicity; Asian migration and diaspora to the Americas; Asian American work and labor issues; gender, family, and communities; nationalism and nativism, and anti-Asian movements; Asian Americans in World War II, the Cold War, and the issues in the civil rights & post-civil rights era.
**Cross-listed with:** HIST221.
**Credit Only Granted for:** AAST201 or HIST221.

**AAST222 Immigration and Ethnicity in the US (3 Credits)**
Explores historical and contemporary Asian immigration to the US in comparison to and in the context of other immigrant groups. From low-skilled laborers to highly-skilled professionals, Asian and other immigrants have been an integral part of the shifting US economy and society since its inception. The course includes theories on why immigration occurs, determinants of its continuation, the uses of migrant labor, and immigrant adaptation and settlement. The second part of the course focuses on theories of ethnicity and racial formation and how immigrants develop and challenge the definitions of race, ethnicity, the "other", and ultimately, who is American. Students will also have the opportunity to gain first-hand knowledge of the immigrant experience through a life history interview project.
**Cross-listed with:** SOCY322.
**Credit Only Granted for:** AAST322, SOCY222, HIST322 or SOCY322.
**Formerly:** AAST222, SOCY222.

**AAST233 Introduction to Asian American Literature (3 Credits)**
A survey of Asian American literature with an emphasis on recurrent themes and historical context.
**Cross-listed with:** ENGL233.
**Credit Only Granted for:** ENGL233 or AAST233.

**AAST250 Asian American Foodways (3 Credits)**
Kimchi, chop suey, Spam, "curry," poke: while these foods are now widely embraced, we will inquire how "hallmark" Asian/American foods have assumed cultural meaning and significance in the U.S., often through their transnational entanglements with histories of colonialism, exclusion, immigration, war, and globalization. We will think about how the aesthetics and significations of taste are bound up in the ways Asian Americans perceive themselves and are perceived by others, inquiring how ideas of the "perpetual foreigner" and the "model minority" might inform consumption practices. As the title of this course suggests, foodways will be a central area of analysis, never static but defined by mobility and transmission for Asian American communities. You will also be invited to explore your own relationships to Asian American food cultures through personal and academic accounts, a diverse range of media (TV, film, social media), cookbooks, and memoirs.
**Credit Only Granted for:** AAST298G or AAST250.
**Formerly:** AAST298G.

**AAST262 Asian American Psychology (3 Credits)**
An overview of how socio-cultural influences impact the development and psychological health of Asian Americans. Other topics include how minority group status, adaptation and identity development influence various aspects of psychological functioning; the role of historic systematic racism; and, how the COVID-19 pandemic has negatively impacted Asian Americans. Students develop a deeper understanding of the role of stereotypes and racism, acculturation, racial identity development, cultural values, gender socialization, behavioral norms, family roles, stressors and social support systems on the mental health, well-being and health of Asian Americans.
**Cross-listed with:** PSYC262.
**Credit Only Granted for:** PSYC262, AAST262 or PSYC489Z.
**Formerly:** PSYC489Z.

**AAST298 Special Topics in Asian American Studies (3 Credits)**
An introductory multidisciplinary and interdisciplinary educational experience to explore issues relevant to Asian American life, cultural experiences; and political, economic, and artistic development.
**Repeatable to:** 6 credits if content differs.

**AAST310 Introduction to Comparative Ethnic and Racial Studies (3 Credits)**
Introduces students to the study of race and ethnicity in the United States. The class is organized according to the following five units: (1) Introduction; (2) Key concepts; (3) Mechanisms of racial formation; (4) Prevailing myths about race; and (5) Contemporary issues related to race and ethnicity. Through readings, film clips, and presentations, we will explore how the concept of race has developed and endured over time and become familiar with key concepts, such as "race" and "intersectionality". We will attempt to better understand how race is associated with other forms of difference, such as class, gender and ethnicity. We will identify and confront the prevailing myths about race and ethnicity in the United States. Finally, we examine the ways in which contemporary issues reveal the dynamics of race and ethnicity.
**Cross-listed with:** AMST310.
**Credit Only Granted for:** AMST310, AAST398F, AAST310, or AMST328L.
**Formerly:** AMST328L and AAST398F.

**AAST322 Immigration and Ethnicity in the US (3 Credits)**
Explores historical and contemporary Asian immigration to the US in comparison to and in the context of other immigrant groups. From low-skilled laborers to highly-skilled professionals, Asian and other immigrants have been an integral part of the shifting US economy and society since its inception. The course includes theories on why immigration occurs, determinants of its continuation, the uses of migrant labor, and immigrant adaptation and settlement. The second part of the course focuses on theories of ethnicity and racial formation and how immigrants develop and challenge the definitions of race, ethnicity, the "other", and ultimately, who is American. Students will also have the opportunity to gain first-hand knowledge of the immigrant experience through a life history interview project.
**Cross-listed with:** SOCY322.
**Credit Only Granted for:** AAST322, SOCY222, HIST322 or SOCY322.
**Formerly:** AAST222, SOCY222.

**AAST350 South Asian American Experiences (3 Credits)**
Explores the historical and current day experiences of diverse South Asian groups in the United States. Drawing from an array of materials, including historical, literary, visual and media texts, the course examines several key issues-- such as immigrant family and generational gap, racial stereotyping, media representation, the intersections of gender, race, and sexuality, the model minority and identity politics, casteism, and interracial relations and ethnic identity formation-- from both national and transnational frameworks for understanding historical and contemporary experiences of South Asian Americans.
**Credit Only Granted for:** AAST298O or AAST350.
**Formerly:** AAST298O.

**AAST351 Asian Americans and Media (3 Credits)**
From yellow peril invaders to model minority allies, Asian Americans have crafted their own dynamic cultural expressions in a number of media from film, television, and music to fashion, sports, and food that reveal and contest the contradictions of the U.S. nation-state. Asian American culture also uniquely sits at the nexus of immigration flows and digital technologies, providing a transnational lens to view the US place in the world. This advanced course, then, will introduce students to the study and practice of Asian American cyktyre as multiple , hybrid, and heterogeneous. It will do so through three sections: section one will introduce students to classical, cultural, and media concepts as well as relevant keywords outlined by Asian American Studies scholars; section two will review the work of Asian American cultural theorists; section three will focus on analyses of particular Asian American cultural productions. In doing so, students will gain an understanding of the shifting and interlocking tensions among the local, the national, and the global that form the cultural geographies of Asian America.
**Credit Only Granted for:** AAST351, AAST398M or AAST398N.
**Formerly:** AAST398M, AAST398N.

**AAST355 Asian Americans in Film (3 Credits)**
Explores how Asian Americans have historically been represented in the U.S. by Hollywood, and in turn, how independent and Hollywood Asian American filmmakers have represented themselves. It covers the history of racial, gendered, and sexualized representations of Asian Americans in Hollywood, as well as Asian American filmic responses within and outside Hollywood. It also introduces how four basic tools of film analysis mise-en-scene, cinematography, editing and sound work together to create meaning in moving images. It examines how these elements are put together in three different types of films by Asian American filmmakers: narrative, documentary, and experimental. How films function in society to circulate ideas that reproduce and challenge stereotypes about Asian Americans.
**Cross-listed with:** AMST328W.
**Credit Only Granted for:** AAST355, AAST398L or AMST328W.
**Formerly:** 398L.

**AAST363 Filipino American History and Biography (3 Credits)**
Focus is placed on Filipino American experiences with an emphasis on identity, community building and organizing to influence public policy We will cover pertinent events from the US and Philippine history in order to understand the impact of colonialism, migration, immigration and assimilation on Filipino Americans.
**Cross-listed with:** AMST323.
**Credit Only Granted for:** AAST363, AMST323, AAST398D, or AMST328J.
**Formerly:** AAST398D.

**AAST378 Experiential Learning (3 Credits)**
Field experience/internship in professional organizations and appropriate private and governmental agencies serving the Asian American community.
**Restriction:** Permission of UGST-Undergraduate Studies.
**Repeatable to:** 6 credits.

**AAST388 Independent Research (1-3 Credits)**
Directed, independent study in Asian American Studies resulting in the completion of an original research paper.
**Restriction:** Permission of UGST-Undergraduate Studies.
**Repeatable to:** 6 credits if content differs.

**AAST394 Growing Up Asian American: The Asian Immigrant Family and the Second Generation (3 Credits)**
An interdisciplinary course examines the experiences of children of Asian immigrants in the U.S., focusing on intergenerational dynamics in the Asian immigrant family, their intersections with race, gender, class, sexuality, and religion, and how these shape second-generation Asian American life. Topics include identity and personhood, the model minority myth and education, work and leisure, language and communication, filiality and disownment, mental health and suicide.
**Cross-listed with:** AMST324, IMMR394.
**Credit Only Granted for:** AAST394, AAST398E, AMST324, AMST328V, IMMR319G or IMMR394.
**Formerly:** AAST398E.

**AAST398 Selected Topics in Asian American Studies (3 Credits)**
Study of a specific theme or issue involving the Asian America experience.
**Repeatable to:** 6 credits if content differs.

**AAST420 Asian American Women: The Social Construction of Gender (3 Credits)**
Examines the intersection of gender, race and class as it relates to Asian American women in the United States; how institutionalized cultural and social statuses of gender, race, ethnicity and social class produce and reproduce inequality with implications for Asian Americans and the broader society.
**Cross-listed with:** WGSS420.
**Restriction:** Must not have completed WMST420.
**Credit Only Granted for:** AAST420, WMST420 or WGSS420.

**AAST421 Asian American Public Policy (3 Credits)**
Using Asian Pacific Americans as a case study, this course will analyze the development of public policy in America. Each week, topics such as community development, voting rights, and the movement to redress the wartime internment of Japanese Americans will serve as backdrops for discussion. We will explore the policy-making roles of legislators, judges, local and national political leaders, journalists, writers, unions, social movements, and community organizations.
**Cross-listed with:** AMST418N.
**Credit Only Granted for:** AAST421, AAST498M or AMST418N.
**Formerly:** AAST498M.

**AAST422 Asian American Women and Gender (3 Credits)**
Examines Asian/American cultural production along with theories of gender and sexuality in the field of Asian American Studies. We consider how Asian American femininities/masculinities are conceived and circulated, drawing from a diverse selection of twentieth-century and contemporary texts, films and images that connect Asian American bodies to ideas of absence, danger, inscrutability, hyper- or hypo-sexuality, and virulence. Beginning with early to mid-twentieth century representations, the course attends to theories that clarify the contested relationship between the East/West and Asia/U.S. Also examined are the methods through which bodies differentiated by sex, gender, and race are managed, surveilled, and rehabilitated, with close attention to the enduring legacies of American expansionism and conquest, anti-immigration policies in the U.S., and twentieth-century wars and occupations in Asia. The course engages Women of Color feminisms, queer theory, and disability studies.
**Credit Only Granted for:** AAST498G or AAST422.
**Formerly:** AAST498G.

**AAST424 Sociology of Race Relations (3 Credits)**
Encourages sociological thinking about US racial and ethnic minority populations, with a focus on African Americans, Latinos, Asian Americans, and Native Americans. The central concern is to understand and explain racial/ethnic inequality. A wide array of topics are discussed, including prejudice and discrimination, slavery, residential segregation, cultural inequality, skin tone stratification, economic and educational disparities, and assimilation/generational processes.
**Prerequisite:** 6 credits in SOCY courses; or permission of the Sociology department.
**Cross-listed with:** SOCY424.
**Credit Only Granted for:** SOCY424 or AAST424.

**AAST440 South Asian American Literature and Culture (3 Credits)**
Examines writing by South Asian American authors and authors writing about South Asian American issues. It explores major South Asian diaspora themes, considering how migration, war, the events of 9/11, global capitalism, and the changing socio-political and racial scene have affected South Asians in the United States. We will use a transnational approach to consider how writers and filmmakers explore gender, class, religious, caste, and other differences amongst South Asian Americans. We will also examine the place of South Asian Americans in relation to other Asian American populations. We will consider how South Asian American texts disrupt traditional literary classifications based on national identities by reflecting the complex global conditions, imperialistic and capitalistic expansion, and interconnectedness of peoples, nations, and cultures that have transformed American literature and conceptions of American identity.
**Credit Only Granted for:** AAST440 or AAST498W.
**Formerly:** AAST498W.

**AAST443 Asian American Politics (3 Credits)**
Students will gain a greater understanding of 1) the role of Asian Americans in US politics, 2) the political attitudes and behaviors of Asian Americans and 3) how to conduct research on Asian American politics. Though the class will concentrate on Asian Americans, issues related to Asian American politics will be examined within the larger context of America's multicultural political landscape.
**Cross-listed with:** AMST498J, GVPT368C.
**Credit Only Granted for:** AAST498T, AAST443, GVPT368C or AMST 498J.
**Formerly:** AAST498T.

**AAST498 Advanced Topics in Asian American Studies (3 Credits)**
Advanced study of the cultural and historical antecedents of contemporary Asian American society. Emphasis on the social, political, economic, and behavioral factors affecting Asian Americans and their communities.
**Repeatable to:** 6 credits if content differs.

**AAST499 Senior Thesis (3 Credits)**
Under the supervision of faculty, research regarding a specific topic of the Asian American experience will be completed.
**Prerequisite:** AAST201 and AAST200.
**Restriction:** Permission of UGST-Undergraduate Studies; and must be in Asian American Studies program.
**Repeatable to:** 6 credits if content differs.

# ABRM - Anti-Black Racism

**ABRM330 Introduction to Anti-Black Racism (3 Credits)**
This interdisciplinary course seeks to provide a broad overview of this rich and dynamic history. Built around the expertise of top UMD faculty in five colleges, this course will introduce students to the history and legacy of anti-Black racism from the perspective of multiple disciplines. In this course you will examine the development, spread, and articulations of anti-Black racism in the United States.
**Additional Information:** This interdisciplinary course will consist of two-week modules from key faculty/scholars in College of Behavioral and Social Sciences, College of Arts and Humanities, School of Public Health, School of Public Policy, and College of Education to explore how anti-Black racism operates in society.

**ABRM450 Applied Anti-Black Racism (3 Credits)**
The purpose of this course is to apply knowledge rooted in Anti-Black Racism to a real-world problem or issue within your chosen discipline or planned career path. You will meet with the course instructor and each other to discuss the readings, ideas and frameworks of anti-Black racism. The rest of the course will operate similar to an independent study; you will choose a mentor from your home department to work with on a self-directed, practice-oriented project. Beginning with a framework rooted in understanding anti-Black racism, you will identify issues of anti-Black racism specific to your discipline, select one of those issues within which to explore current solutions and their shortcomings, and draft a proposal that addresses the anti-Black racism embedded within the issue itself.
**Prerequisite:** ABRM330.

# AGNR - Agriculture and Natural Resources

**AGNR100 Agriculture Discovery: An Educational Odyssey Exploring Food, Culture, and the Environment (3 Credits)**
Explores the history, cultural impact, and current issues of agriculture. Students are exposed to the wide range of professional opportunities associated with the use of plants and animals in the production and processing of food for human consumption. Students learn from Agriculture and Natural Resources (AGNR) faculty and USDA collaborators through lectures, labs and field trips to facilities in the Baltimore-Washington area.

**AGNR200 AGNR 2+2 Program Extended Orientation Seminar (1 Credit)**
Introduces AGNR 2+2 students to University and "American" life. Assists with their successful transition to the College and Agriculture and Natural Resources and the University of Maryland. Helps students to understand their place in AGNR at to learn about the resources available to them.
**Prerequisite:** Must be a first semester international student enrolled in the AGNR 2+2 Program.
**Restriction:** Must be a first year international student enrolled in the College of Agriculture and Natural Resources 2+2 Program.
**Additional Information:** It is strongly recommended that AGNR 2+2 students take AGNR 200 during the first semester at the University. One class meeting per week. This courses is initiated by International Programs and will be coordinated in conjunction with the College of AGNR.

**AGNR270 Technology Training Seminar (2-3 Credits)**
A hands-on training seminar about pedagogical applications of information technology and mastery of several technical skills. Special emphasis is placed on gainfully understanding technological issues such as copyright and intellectual property, accessibility, and usability.
**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-College of Agriculture & Natural Resources.
**Credit Only Granted for:** AGNR270 or BSCI279.

**AGNR301 Sustainability (3 Credits)**
Designed for students whose academic majors would be enhanced by the complementary study of a widely shared but hard-to-operationalize aspiration: that present choices should preserve or improve future options rather than foreclose or degrade them. How should we understand sustainability? How might we achieve it? How would we know if we had achieved it? And how could sustainability activists of a rising generation lead by example?
**Cross-listed with:** PLCY301.
**Credit Only Granted for:** AGNR301, PUAF301, or PLCY301.
**Formerly:** PUAF301.

**AGNR386 Experiential Learning (3-6 Credits)**
**Restriction:** Permission of AGNR-College of Agriculture & Natural Resources.
**Formerly:** AGRI386.

**AGNR388 Honors Thesis Research (3-6 Credits)**
Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.
**Restriction:** Must be admitted to AGNR Honors program.
**Repeatable to:** 6 credits if content differs.
**Formerly:** AGRI388.

**AGNR489 Field Experience (1-4 Credits)**
Credit according to time scheduled and organization of the course. A lecture series organized to study in depth a selected phase of agriculture not normally associated with one of the existing programs.
**Restriction:** Permission of AGNR-College of Agriculture & Natural Resources.
**Repeatable to:** 4 credits if content differs.
**Formerly:** AGRI489.

**AGNR499 Special Problems (1-3 Credits)**
**Formerly:** AGRI499.

# AGST - Agricultural Science and Technology

**AGST130 Did Yeast Create Civilization? (3 Credits)**
Did yeast create civilization? Fermented foods have played a major role in the transition from nomadic to settled agrarian societies, the establishment of social and religious customs, the expansion of empires, and modern economies. To what extent are our past and current attitudes towards fermented foods rooted in historical and cultural imprints? Explore the central role of fermentation in human history and culture, the basic microbiological processes underlying fermentation processes, and the processes used to produce and distribute fermented foods. Find out how the fruits, grains, and dairy products used to produce fermented foods are grown and selected. Students will learn about the development and modern use of fermented dairy products, pickles, bread, tea, chocolate, wine, beer, distilled liquors, and pharmaceutical/manufactured products.
**Recommended:** CHEM103, CHEM131, CHEM135, or CHEM146.
**Cross-listed with:** PLSC130.
**Credit Only Granted for:** AGST130 or PLSC130.

**AGST275 Fundamentals of Agricultural and Environmental Chemistry (3 Credits)**
An in-depth discussion of chemistry targeted to students enrolled in plant and animal management curricula offered in AGNR. Covers the nomenclature and basic functional groups in organic chemistry, natural products and pesticides. Current practices of crop, agriculture and environmental management and genetic engineering also discussed.
**Prerequisite:** Minimum grade of C- in CHEM131 and CHEM132; and minimum grade of C- in (PLSC110 and PLSC11) or (PLSC112 and PLSC113) or (BSCI160 and BSCI161) or (BSCI170 and BSCI171).
**Restriction:** Must not have completed CHEM104 or CHEM105; and must be in a major within the AGNR-College of Agriculture and Natural Resources; or permission of instructor.
**Credit Only Granted for:** AGST275 or PLSC275.
**Formerly:** PLSC275.

**AGST333 Crafty Beverage Crops (3 Credits)**
From soda to wine, a scientific introduction to "crafty beverage crops". Students will expand their horticulture knowledge and gain an appreciation for craft beverages and the plants that made them. Topics include history, biology, production and management techniques, harvest, storage and market potential for crafty beverage crops.
**Recommended:** PLSC110 or PLSC112; or 1 course in BSCI, BCHM, BIOL.

**AGST389 Internship in Agricultural Education (1-3 Credits)**
An experiential learning course with a focus on non-formal agricultural education. This is a supervised learning experience within a career focused environment to assist in refinement of a student's career interests prior to graduation.
**Restriction:** Permission of the instructor.
**Repeatable to:** 6 credits if content differs.

**AGST399 Special Problems in Agricultural Science & Technology (1-3 Credits)**
A problem based learning course with a focus on class or group based research projects in Agricultural Science and Technology with a focus on addressing outreach targeted needs.
**Restriction:** Permission of the instructor.
**Repeatable to:** 6 credits if content differs.

**AGST400 Advanced Crop Science (3 Credits)**
Focuses on the study of the agronomic principles and practices required for the production of food, feed, fiber and fuel crops. This is a project-based course where students will develop a farm plan from knowledge gained in previous courses and built upon in this course. Students will learn to integrate data and information from many sources in order to build and operate a successful and sustainable agronomic farm operation using current and new technology. The use of farm management software will be an integral part of the course and farm project.
**Prerequisite:** PLSC112, PLSC113, BSCI160, BSCI161, and MATH113 or higher.
**Recommended:** ANSC101.
**Credit Only Granted for:** PLSC407 or AGST400.
**Formerly:** PLSC407.
**Additional Information:** There will be two required Saturday field trips during the semester. Because of the changing nature of agriculture, the dates of these field trips will be decided upon at the beginning of the semester by discussion among the students and based on cooperators availability and environmental factors. Students will have a minimum of two weeks notice as to the dates of the field trips.

**AGST401 Tractor and Equipment Operation, Safety and Maintenance (1 Credit)**
Provides students with basic skills needed to safely operate and maintain farm equipment, such as tractors and implements used in agronomic production. Students will receive introductory background training in the basic safety and operation of tractors through hands-on learning. Emphasis will also be placed on the mechanical functioning of equipment and the functional similarities and differences between gasoline (two-stroke and four-stroke) and diesel engines as well as electric motors as they relate to farm equipment (mobile and stationary). This knowledge will be used to teach students to safely perform basic care and maintenance of different tractor types as well as various implements. Students will also learn basic implement connection and disconnection, including the safe use of implements that employ a power take-off unit. Included in the course will be an introduction to the equipment and use of satellite navigation systems used in agronomic production.
**Prerequisite:** PLSC112 and PLSC113; MATH113 or higher MATH course; and must have completed or be concurrently enrolled in AGST400.
**Restriction:** Must be in the Agricultural Science and Technology major (01010) with priority given to Agronomy students (0101A); and must have earned a minimum of 60 credits; and permission of the Department of Plant Sciences and Landscape Architecture.
**Additional Information:** Course location will be the University of Maryland Wye Research & Education Center, Queenstown, Maryland. Because students will be working around machinery with moving parts, there is a strict dress code based on information from the United State Department of Agriculture Cooperative States Research, Education and Extension Service's Hazardous Occupations Safety Training for Agriculture (HOSTA), National Safe Tractor and Machinery Operation Program (NSTMOP) standards. YContact instructor for more information?.

**AGST426 Scientists Teaching and Translating Science (3 Credits)**
Explore methods in pedagogy, andragogy, and heutagogy to facilitate science learning through the development of a teaching philosophy, outreach teaching skills, motivation in learning, assessment foundations, and review of current literature on instruction in science fields.
**Credit Only Granted for:** AGST426 or PLSC489L.
**Formerly:** PLSC489L.

**AGST440 Exploring Maryland Agriculture, Agricultural Industry, and Agricultural Literacy (3 Credits)**
Explore the mission and history of the Land Grant System as well as current work conducted through the University of Maryland to extend research to citizens. Often referred to as America in miniature, Maryland boasts diverse people, agricultural practices, cultures, and ecosystems which students will examine to perceive the decision making processes within and across ecological systems as well as the development of advisory boards.

**AGST489 Special Topics in Agricultural Science and Technology (1-3 Credits)**
Selected novel topics of study in Agricultural Science & Technology (AGST).
**Restriction:** Permission of the instructor.
**Repeatable to:** 9 credits if content differs.

**AGST499 Independent Studies in Agricultural Science and Technology (1-3 Credits)**
An inquiry based learning course with individualized projects designed by student and faculty focused on: research or advanced learning experiences in Agricultural Science and Technology including field, greenhouse, laboratory, educational site, travel abroad and/or library studies. Conducted under the direction of a faculty member.
**Restriction:** By permission of instructor.
**Repeatable to:** 6 credits if content differs.

# AMSC - Applied Mathematics & Scientific Computation

**AMSC420 Mathematical Modeling (3 Credits)**
The course will develop skills in data-driven mathematical modeling through individual and group projects. Emphasis will be placed on both analytical and computational methods, and on effective oral and written presentation of results.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and 1 course with a minimum grade of C- from (MATH241, MATH340); and 1 course with a minimum grade of C- from (MATH246, MATH341); and 1 course with a minimum grade of C- from (STAT400, STAT410); and 1 course with a minimum grade C- from (CMSC106, CMSC131).
**Cross-listed with:** MATH420.
**Credit Only Granted for:** AMSC420 or MATH420.

**AMSC452 Introduction to Dynamics and Chaos (3 Credits)**
An introduction to mathematical dynamics and chaos. Orbits, bifurcations, Cantor sets and horseshoes, symbolic dynamics, fractal dimension, notions of stability, flows and chaos. Includes motivation and historical perspectives, as well as examples of fundamental maps studied in dynamics and applications of dynamics.
**Prerequisite:** MATH341; or MATH246 and one of (MATH240 or MATH461).
**Cross-listed with:** MATH452.
**Credit Only Granted for:** AMSC452 or MATH452.

**AMSC460 Computational Methods (3 Credits)**
Basic computational methods for interpolation, least squares, approximation, numerical quadrature, numerical solution of polynomial and transcendental equations, systems of linear equations and initial value problems for ordinary differential equations. Emphasis on methods and their computational properties rather than their analytic aspects. Intended primarily for students in the physical and engineering sciences.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461); and 1 course with a minimum grade of C- from (MATH241, MATH340); and 1 course with a minimum grade of C- from (CMSC106, CMSC131); and minimum grade of C- in MATH246.
**Cross-listed with:** CMSC460.
**Credit Only Granted for:** AMSC460, AMSC466, CMSC460, or CMSC466.

**AMSC466 Introduction to Numerical Analysis I (3 Credits)**
Floating point computations, direct methods for linear systems, interpolation, solution of nonlinear equations.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461); and 1 course with a minimum grade of C- from (MATH241, MATH340); and 1 course with a minimum grade of C- from (CMSC106, CMSC131); and minimum grade of C- in MATH410.
**Cross-listed with:** CMSC466.
**Credit Only Granted for:** AMSC460, CMSC460, AMSC466, or CMSC466.

**AMSC498 Selected Topics in Applied Mathematics (1-3 Credits)**
Topics in applied mathematics of special interest to advanced undergraduate students.
**Repeatable to:** 6 credits if content differs.

# AMST - American Studies

**AMST101 Introduction American Studies (3 Credits)**
Introduces students to the interdisciplinary field of American Studies by examining concepts such as culture, identity, cultural practices, and globalization, as well as theories underlying these concepts. Engages key themes, especially constructions of difference and identity, cultures of everyday life, and America and the world.
**Credit Only Granted for:** AMST101 or AMST201.
**Formerly:** AMST201.

**AMST189C Martin Luther King Jr. (3 Credits)**
Examines the life and work of Martin Luther King, Jr. We immediately rethink the image of King who liberals and conservatives construct as a dreamer of better race relations. We engage the complexities of an individual, who articulated a moral compass of the nation, to explore racial justice in post-World War II America. This course gives special attention to King's post-1965 radicalism when he called for a reordering of American society, an end to the war in Vietnam, and supported sanitation workers striking for better wages and working conditions. Topics include King's notion of the "beloved community", the Social Gospel, liberalism, "socially conscious democracy", militancy, the politics of martyrdom, poverty and racial justice, and compensatory treatment. Primary sources form the core of our readings.
**Cross-listed with:** HIST108C, AASP298M.
**Credit Only Granted for:** HIST108C, AASP298M, or AMST189C.

**AMST202 Cultures of Everyday Life in America (3 Credits)**
Examine the structures and patterns of everyday life in the U.S., utilizing methods such as ethnography, oral history, survey research, and textual, visual, and material cultural analysis.

**AMST203 Popular Culture in America (3 Credits)**
An introduction to American popular culture, its historical development, and its role as a reflection of and influence on our culture and society.

**AMST204 Film and American Culture Studies (3 Credits)**
Exploration of the American film from a historical perspective, illustrating the motion picture's role as an institutional phenomenon, as a form of communication, and as a source of cross-cultural study.

**AMST205 Material Aspects of American Life (3 Credits)**
Historical survey of American material culture. Ways of describing and interpreting accumulated material evidence (e.g., buildings, town plans) introduced by stressing relationship between artifact and culture.

**AMST210 Introduction to Ethnography (3 Credits)**
A qualitative research method course used to study social worlds communities, cultures, institutions, and other social groups from the perspectives of the people who inhabit those social worlds. Ethnographic research involves understanding cultural traditions from an insider's perspective by studying the everyday lives of people steeped in those traditions.

**AMST212 Diversity in American Culture (3 Credits)**
Exploration of the role of diversity in the shaping of American culture. Special emphasis will be placed on the multicultural origins of American popular and material culture, such as foodways and entertainment, and on the experience of "Americanization."

**AMST213 Heroes and Villains in American Film (3 Credits)**
We will examine the complex, changing, and ever-present representations of heroes and villains in American film. Beginning with a foundational understanding of how heroes and, conversely, villains have been defined through classic Hollywood film, we will explore how these definitions have shifted throughout the 20th and 21st century in various narrative genres, including westerns, war films, film noir, fantasy, science fiction, and, of course, superhero movies. In particular, we will be focusing on how the hero and villain maintain or disrupt specific cultural ideologies concerning race/ethnicity, gender, sexuality, and ability. This course will examine how these various ideologies have evolved throughout the 20th and 21st century, impacting the ways in which heroes and villains are both represented in American film and perceived by diverse audiences. Finally, we will examine our own complicated and sometimes troubling identification with these heroes, even when they might stand in stark contrast to our cultural values and identities.
**Cross-listed with:** CINE282.
**Credit Only Granted for:** AMST213, HONR219F, CINE282 or FILM298V.
**Formerly:** HONR219F, FILM298V.

**AMST250 Empire and Settler Colonialism (3 Credits)**
Engages with the connections between settler colonialism and empire/imperialism and what their effects are on race, land, dispossession, and migration. The course will begin by grounding students in course key concepts including Settler Colonialism, Empire, Imperialism, Sovereignty, and Legality, situating these concepts in relation to space, place, and geography. The second half of the course will use these theoretical lenses to analyze the social conditions faced by BIPOC peoples. These topics will cover criminalization and police violence, Indigenous and women of color feminist and two spirit/queer experience, environmental racism, and state-based forms of racial documentation. The course will end with a discussion of decolonization and what it means in relation to settler colonialism and empire.

**AMST260 American Culture in the Information Age (3 Credits)**
Examines the ways in which content and form of public information interact with the culture, families & individuals.
**Credit Only Granted for:** AMST260 or AMST298I.
**Formerly:** AMST298I.

**AMST262 Houses, Schools, and Prisons in American Life (3 Credits)**
This interdisciplinary course explores the role of property, discipline, and punishment in American life. By exploring the ideological underpinnings in property, discipline, and punishment and their manifestations in houses, schools, and prisons we will explore how these entities reflect American society and its values.

**AMST269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**AMST290 Shifting Sands: Constructing Cultural Mainstreams and Margins in the U.S. (3 Credits)**
Examines the construction, operation, and meaning of cultural mainstreams and margins in a range of contexts, spaces, and times in the U.S. Using a variety of primary sources, research methods, and interdisciplinary scholarship, we will explore how Americans make and assign meaning to cultural mainstreams and margins. We will examine how and why cultural margins and mainstreams shift over time and what their consequences have been for social policies, laws, power relations, and national identity.
**Credit Only Granted for:** AMST289A or AMST290.
**Formerly:** AMST289A.

**AMST298 Selected Topics in American Studies (3 Credits)**
Cultural study of a specific theme or issue involving artifacts and documents from both past and contemporary American experience.
**Repeatable to:** 6 credits if content differs.

**AMST298Q U.S. Latinx Literature and Culture (3 Credits)**
Examines the poetry, prose, and theater of Latinx communities in the United States from their origins in the Spanish colonization of North America to their ongoing development in the 21st century. Considers how authors use literary form to gain insight into human experience, including mortality, religious belief, gender and sexuality, war and peace, family, language use, scientific inquiry, cultural tradition, ecology, and labor. Also studies how Latinx literary traditions have shaped and been shaped by broader currents in American literature, as well as what connections exist between Latinx literature and social and artistic developments in other parts of the world, particularly Latin America and the Caribbean. Authors may include Alvar Nunez Cabeza de Vaca, Eulalia Perez, Juan Nepomuceno Seguin, Maria Amparo Ruiz de Burton, Jose Marti, Arthur A. Schomburg, Jesus Colon, Julia de Burgos, Cesar Chavez, Ariel Dorfman, Gloria Anzaldua, Junot Diaz, and Cristina Garcia.
**Cross-listed with:** ENGL235.
**Credit Only Granted for:** ENGL235 or AMST298Q.

**AMST310 Introduction to Comparative Ethnic and Racial Studies (3 Credits)**
Introduces students to the study of race and ethnicity in the United States. The class is organized according to the following five units: (1) Introduction; (2) Key concepts; (3) Mechanisms of racial formation; (4) Prevailing myths about race; and (5) Contemporary issues related to race and ethnicity. Through readings, film clips, and presentations, we will explore how the concept of race has developed and endured over time and become familiar with key concepts, such as "race" and "intersectionality". We will attempt to better understand how race is associated with other forms of difference, such as class, gender and ethnicity. We will identify and confront the prevailing myths about race and ethnicity in the United States. Finally, we examine the ways in which contemporary issues reveal the dynamics of race and ethnicity.
**Cross-listed with:** AAST310.
**Credit Only Granted for:** AMST310, AAST398F, AAST310, or AMST328L.
**Formerly:** AMST328L and AAST398F.

**AMST312 Introduction to Native American and Indigenous Studies (3 Credits)**
Key concepts and theories in Native American Studies beginning with an overview of the field and some of its foundational readings and history, then will move into an understanding of Native American identity and representation and a discussion of Indigenous sovereignty and self-determination. The course will outline past and present genocidal practices that seek to eliminate Native people and Indigenous responses to those structures such as the concept of survivance, Native feminisms, and theories of Indigenous resurgence. The course seeks to move students through an understanding of past and present structures affecting Native American people in the United States and Canada and move into readings that highlight Native articulations of present and future agency. While the focus of the course is Native peoples with the United States and Canada, understanding Indigenous histories and concepts always includes a hemispheric and transnational analysis.
**Credit Only Granted for:** AMST328N, ANTH468F, RELS319N, or AMST312.
**Formerly:** AMST328N, ANTH468F, or RELS319N.

**AMST315 Religion in American Culture (3 Credits)**
Introduces students to the world's major religious traditions and examines how American culture informs, and is informed by, the variety of religious beliefs and practices in the U.S. This course is primarily concerned with religion as a system of meaning. The focus of the course is not on the history of religion or on analysis of religious texts, but rather on the meaning of a religion to its believers.
**Recommended:** AMST101.
**Credit Only Granted for:** AMST315 or AMST328R.
**Formerly:** AMST328R.

**AMST320 (Dis)ability in American Film (3 Credits)**
Explores the connection between film and disability through an analysis of independent and mainstream American films in various film genres. Specifically, we will consider how these film representations reflect and/or challenge the shifting social perspectives of disability over the 20th and 21st centuries. Beginning with the presentation of disability as theatrical spectacle in the traveling sideshow and early cinema, we will work our way through film history to develop an understanding of our society's complicated relationship with disability.
**Credit Only Granted for:** AMST320 or AMST328X.
**Formerly:** AMST328X.

**AMST323 Filipino American History and Biography (3 Credits)**
Focus is placed on Filipino American experiences with an emphasis on identity, community building and organizing to influence public policy We will cover pertinent events from the US and Philippine history in order to understand the impact of colonialism, migration, immigration and assimilation on Filipino Americans.
**Cross-listed with:** AAST363.
**Credit Only Granted for:** AAST363, AMST323, AAST398D, or AMST328J.
**Formerly:** AAST398D.

**AMST324 Growing Up Asian American: The Asian Immigrant Family and the Second Generation (3 Credits)**
An interdisciplinary course examines the experiences of children of Asian immigrants in the U.S., focusing on intergenerational dynamics in the Asian immigrant family, their intersections with race, gender, class, sexuality, and religion, and how these shape second-generation Asian American life. Topics include identity and personhood, the model minority myth and education, work and leisure, language and communication, filiality and disownment, mental health and suicide.
**Cross-listed with:** AAST394, IMMR394.
**Credit Only Granted for:** AAST394, AAST398E, AMST324, AMST328V, IMMR319G or IMMR394.
**Formerly:** AAST398E.

**AMST328 Perspectives on Identity and Culture (3 Credits)**
Analysis of the cultural aspect of identity formation and the role of individual or community identities in cultural production. Examination of cultural texts such as film, literature, fashion, artifacts, archival records, architecture, monuments, sports, and paintings.
**Repeatable to:** 9 credits if content differs.

**AMST328W Asian Americans in Film (3 Credits)**
Explores how Asian Americans have historically been represented in the U.S. by Hollywood, and in turn, how independent and Hollywood Asian American filmmakers have represented themselves. It covers the history of racial, gendered, and sexualized representations of Asian Americans in Hollywood, as well as Asian American filmic responses within and outside Hollywood. It also introduces how four basic tools of film analysis mise-en-scene, cinematography, editing and sound work together to create meaning in moving images. It examines how these elements are put together in three different types of films by Asian American filmmakers: narrative, documentary, and experimental. How films function in society to circulate ideas that reproduce and challenge stereotypes about Asian Americans.
**Cross-listed with:** AAST355.
**Credit Only Granted for:** AAST355, AAST398L or AMST328W.
**Formerly:** 398L.

**AMST340 Introduction to History, Theories and Methods in American Studies (3 Credits)**
Introduction to the process of interdisciplinary research, including research literatures, questions, first-hand sources and library and analytic methods in American Studies. Each student will craft a prospectus for original research.
**Prerequisite:** Must have completed AMST201; and 2 courses in AMST.
**Restriction:** Must be in American Studies program; and sophomore standing or higher.

**AMST369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**AMST386 Experiential Learning (3-6 Credits)**
**Restriction:** Permission of ARHU-American Studies department; and junior standing or higher.

**AMST388 Honors Thesis (3-6 Credits)**
Individual research, thesis and oral defense. The research project will be conducted under the supervision of a faculty member.
**Restriction:** Must be admitted to AMST honors program; and permission of ARHU-American Studies department; and senior standing.
**Repeatable to:** 6 credits if content differs.

**AMST398 Independent Studies (1-3 Credits)**
Provides the student with the opportunity to pursue independent, interdisciplinary research and reading in specific areas of American culture studies.
**Restriction:** Permission of ARHU-American Studies department.
**Repeatable to:** 6 credits if content differs.

**AMST418 Cultural Themes in America (3 Credits)**
Examination of structure and development of American culture through themes such as "growing up American," "culture and mental disorders," "race," "ethnicity," "regionalism," "landscape," and "humor."
**Repeatable to:** 6 credits if content differs.

**AMST418N Asian American Public Policy (3 Credits)**
Using Asian Pacific Americans as a case study, this course will analyze the development of public policy in America. Each week, topics such as community development, voting rights, and the movement to redress the wartime internment of Japanese Americans will serve as backdrops for discussion. We will explore the policy-making roles of legislators, judges, local and national political leaders, journalists, writers, unions, social movements, and community organizations.
**Cross-listed with:** AAST421.
**Credit Only Granted for:** AAST421, AAST498M or AMST418N.
**Formerly:** AAST498M.

**AMST425 Film and American Landscape (3 Credits)**
Explores how representations of various geographic spaces in American film impact our understanding of community, identity, and place. In particular, we will think about how these spaces are culturally produced and changeable rather than static. The same space can hold diverse meanings for various groups of people and how such a space is represented in film is often wrapped up with issues of power, the reinforcement of stereotypes, and the creation of self/other dichotomies. By analyzing a variety of narrative, documentary, major studio, and independent films, we will seek to understand how American films' representations of rural, urban, and suburban spaces both reflect, contradict, and often influence our lived experiences of these spaces; in other words, this course will examine how the "reel" intersects with the "real".
**Credit Only Granted for:** AMST418K or AMST425.
**Formerly:** AMST418K.

**AMST428 American Cultural Eras (3 Credits)**
Investigation of a decade, period, or generation as a case study in significant social change within an American context. Case studies include "Antebellum America, 1840-1860" and "American culture in the Great Depression."
**Repeatable to:** 6 credits if content differs.

**AMST429 Perspectives on Popular Culture (3 Credits)**
Topics in popular culture studies, including the examination of particular genres, themes, and issues.
**Repeatable to:** 6 credits if content differs.

**AMST450 Seminar in American Studies (3 Credits)**
Developments in theories and methods of American Studies scholarship, with emphasis upon interaction between the humanities and the social sciences in the process of cultural analysis and evaluation.
**Prerequisite:** AMST201 and AMST340; and 1 course in AMST.
**Restriction:** Senior standing; and must be in American Studies program.

**AMST498 Special Topics in American Studies (3 Credits)**
Topics of special interest.
**Repeatable to:** 9 credits if content differs.

**AMST498J Asian American Politics (3 Credits)**
Students will gain a greater understanding of 1) the role of Asian Americans in US politics, 2) the political attitudes and behaviors of Asian Americans and 3) how to conduct research on Asian American politics. Though the class will concentrate on Asian Americans, issues related to Asian American politics will be examined within the larger context of America's multicultural political landscape.
**Cross-listed with:** AAST443, GVPT368C.
**Credit Only Granted for:** AAST498T, AAST443, GVPT368C or AMST 498J.
**Formerly:** AAST498T.

**AMST499 Independent Studies (1-3 Credits)**
Provides the student with the opportunity to pursue independent, interdisciplinary research and reading in specific areas of American culture studies.
**Restriction:** Permission of ARHU-American Studies department; and must be in American Studies program.
**Repeatable to:** 6 credits if content differs.

# ANSC - Animal Science

**ANSC101 Principles of Animal Science (3 Credits)**
A comprehensive overview of the application of biology in the care and use of animals that live in close association with humans including food animals, companion animals, lab animals, zoo animals, etc. The role of science in modern food production using animals will be emphasized.

**ANSC103 Principles of Animal Science Laboratory (1 Credit)**
Laboratory focusing on the application of biology in the care and use of animals that live in close association with humans including livestock and companion animals. Labs will include live animals.
**Prerequisite:** Must have completed or be concurrently enrolled in ANSC101.
**Restriction:** Must be in one of the following programs (Environmental Sci & Pol-Environment & Agriculture; Agricultural and Veterinary Medicine; Agricultural Science and Technology) ; or must be in a major within the AGNR-Animal & Avian Sciences department; or permission of department required for students in other College of AGNR programs.

**ANSC105 Horse Care Practicum (1 Credit)**
This practicum course provides the opportunity for students to be involved in the routine care of the horses housed at the Campus Farm including grooming, feeding, turnout, first aid, record-keeping, and cleaning. Practical skills are supplemented with online learning.
**Restriction:** Permission of the instructor.
**Credit Only Granted for:** ANSC108 or ANSC105.
**Formerly:** ANSC108.

**ANSC115 Careers in the Animal Sciences (1 Credit)**
Discussion of current employment opportunities in Animal Science, primarily by invited speakers. In addition, students will have the opportunity to prepare resumes and improve oral presentation skills while working with their peers.
**Prerequisite:** ANSC101 and ANSC103.

**ANSC120 Introduction to Dairy Judging (2 Credits)**
Students will establish an understanding of dairy cattle anatomy and importance in dairy production, while gaining the ability to evaluate dairy cattle for soundness and show-ring appeal. Additionally, the class aims to provide students with confidence in justifying decisions of evaluation and gain confidence in public speaking.

**ANSC121 Introduction to Livestock Judging (2 Credits)**
Students will establish a working understanding of the structural anatomy of several livestock species- cattle, sheep, pigs, goats- and their individual importance in the Agricultural Industry, while gaining the ability to evaluate these species for soundness and show-ring appeal. Additionally, the class aims to provide students with confidence in justifying decisions of based on their evaluations and gain skills in public speaking. The course will include two weekend field trips to farms in order to practice judging skills.

**ANSC204 Anatomy of Domestic Animals (2 Credits)**
Covering the anatomy of major species of domestic animals. Utilizes a systemic approach to provide a general knowledge of both gross and microscopic mammalian structure. Comparative differences between the major domestic species are covered.
**Prerequisite:** ANSC101, ANSC103, BSCI170 and BSCI171.
**Corequisite:** ANSC205.
**Restriction:** Must be in one of the following programs (Environmental Sci&Pol-Wildlife Resources & Cons; Animal Sciences: Animal Care & Management; Animal Sciences: Equine Studies; Animal Sciences: Laboratory Animal Care; Animal Sciences: Sciences/Preprofessional; Animal Sciences: Animal Biotechnology; Agricultural and Veterinary Medicine).
**Credit Only Granted for:** ANSC211 or ANSC204 AND ANSC205.
**Formerly:** ANSC211.

**ANSC205 Anatomy of Domestic Animals Laboratory (2 Credits)**
A regional approach is taken to study the gross anatomy of major domestic species in the laboratory portion of this course.
**Prerequisite:** ANSC101, ANSC103, BSCI170 and BSCI171.
**Corequisite:** ANSC204.
**Restriction:** Must be in one of the following programs (Environmental Sci&Pol-Wildlife Resources & Cons; Animal Sciences: Animal Care & Management; Animal Sciences: Equine Studies; Animal Sciences: Laboratory Animal Care; Animal Sciences: Sciences/Preprofessional; Animal Sciences: Animal Biotechnology; Agricultural and Veterinary Medicine).
**Credit Only Granted for:** ANSC211 or ANSC204 and ANSC205.
**Formerly:** ANSC211.

**ANSC210 Veterinary Terminology (1 Credit)**
Students will learn terminology related to the clinical practice of small and large animal medicine including medical record terminology and a systems-based consideration of common practices and pathologies.
**Prerequisite:** ANSC204 and ANSC205.
**Restriction:** Must be a major in Animal Sciences.
**Additional Information:** The course is offered on-line through a series of self-paced modules on ELMS.

**ANSC212 Applied Animal Physiology (3 Credits)**
The physiology of domesticated animals with emphasis on functions related to homeostasis, and the physiological adaptation to environmental influences.
**Prerequisite:** ANSC211; or (ANSC204 and ANSC205); or students who have taken courses with comparable content may contact the department.

**ANSC214 Applied Animal Physiology Laboratory (1 Credit)**
Application of physiological laboratory techniques to domestic and lab animals.
**Prerequisite:** Must have completed or be concurrently enrolled in ANSC212.

**ANSC220 Livestock Management (3 Credits)**
Management of meat animals including beef, sheep, and swine. This course will emphasize obtaining optimal efficiency of production through the integration of leading edge breeding, feeding, management, and marketing practices.
**Prerequisite:** ANSC101 and ANSC103.

**ANSC226 The Future of Animal Agriculture (3 Credits)**
Offers students the opportunity to learn about the history of animal agriculture in the United States and envision what its future might be as it adapts to major challenges such as our growing global population, climate change, food injustice, antimicrobial and insecticide resistance, animal welfare concerns, and farmer distress. The course will examine technological & biotechnological, agroecological, and social innovations that address these issues while providing healthy, safe, nutritious food. Students are invited to learn about these issues and to create and propose their own solutions through weekly "extend your learning" opportunities and a course project in animal agricultural extension.
**Additional Information:** The course is hosted on ELMS-Canvas and will require students to have reliable access to the internet.

**ANSC227 Eating with Eyes Wide Open (3 Credits)**
Are our diet and agricultural production methods sustainable? Students will investigate tensions created by trade-offs made by consumers relative to dietary choices which, in turn, can influence agricultural production methods. The course will inform students about their food supply so they can make informed dietary decisions and practice intentional/informed eating.

**ANSC232 Horse Management (3 Credits)**
An introductory course on the care, management, and use of horses. Major topics include the industry, breeds, conformation, feeding, health, reproduction, facilities and business.
**Prerequisite:** ANSC101 and ANSC103.
**Credit Only Granted for:** ANSC232 or ANSC332.
**Formerly:** ANSC332.

**ANSC233 Equine Behavior (2 Credits)**
Both normal and anomalous behavior of horses will be covered. Emphasis will be given to techniques based on knowledge of behavior that are known to be safe and effective in handling horses.
**Prerequisite:** ANSC101, ANSC103, and ANSC232.
**Credit Only Granted for:** ANSC489B or ANSC233.
**Formerly:** ANSC489B.

**ANSC235 Applied Small Ruminant Parturition (2 Credits)**
Popularly known as "Lamb Watch", the course provides an immersion environment for learning and understanding pre- and post-natal care of ewes and lambs through direct, hands-on involvement in the birthing process and care of the neonate through weaning. Covered topics include zoonoses, basic reproductive physiology of the sheep, normal and abnormal delivery, management of lambs, qualitative assessment, breeding principles, etc.
**Prerequisite:** Minimum grade of C- in ANSC101 and ANSC103.
**Restriction:** Must be in one of the following programs (Animal Sciences: Animal Care & Management; Animal Sciences: Equine Studies; Animal Sciences: Laboratory Animal Care; Animal Sciences: Sciences/ Preprofessional; Animal Sciences: Animal Biotechnology; Agricultural and Veterinary Medicine).

**ANSC237 Equine Reproductive Management (3 Credits)**
Students learn the fundamental skills necessary to manage an equine breeding herd including anatomy/physiology of genital tracts, estrus detection, manipulation of the estrous cycle, semen collection, pre- and post-foaling techniques, infertility, and health and nutrition of the mare, foal and stallion. Students will be required to spend ~ 30 hours during the spring semester caring for broodmares and foals and attending at least one foaling and estrous detection checks on broodmares outside of regularly scheduled class time.
**Prerequisite:** ANSC232.
**Credit Only Granted for:** ANSC237 or INAG233.
**Additional Information:** Course participation will include nightly checks of mares in the two weeks prior to parturition, and out-of-class time imprinting and working with newborn foals.

**ANSC242 Dairy Cattle Management (3 Credits)**
All aspects of dairy production, including nutrition, reproduction, mastitis control, milking management, farmstead facilities, financial management and forage production.
**Prerequisite:** ANSC101 and ANSC103.
**Formerly:** ANSC240 and ANSC241.

**ANSC245 Sheep Management (3 Credits)**
Popularly known as "Lamb Watch", this course provides an immersion environment for learning and understanding pre- and post-natal care of ewes and lambs through direct, hands-on involvement in the birthing process and care of the neonate through weaning on the campus farm. Course topics include zoonoses, basic reproductive physiology of the sheep, normal and abnormal parturition, management of lambs, qualitative assessment, breeding principles, nutrition, products and their marketing, and ram management.
**Prerequisite:** Minimum grade of C- in ANSC101 and ANSC103.
**Restriction:** Must be in one of the following programs (Animal Sciences: Animal Care & Management; Animal Sciences: Equine Studies; Animal Sciences: Laboratory Animal Care; Animal Sciences: Sciences/ Preprofessional; Animal Sciences: Animal Biotechnology; Agricultural and Veterinary Medicine).
**Credit Only Granted for:** ANSC235 or ANSC245.

**ANSC246 Beef Management (3 Credits)**
Provides an interactive environment for learning and understanding all areas of beef cattle management including hands-on involvement in the birthing process and care of newborn calves on the campus farm. Course topics will include: An introduction to Beef Production, Breeding and Selection, Reproduction, Nutrition, Cattle Health and Diseases, Cattle Behavior, facility design and management, and Careers working in the American Beef industry.
**Prerequisite:** ANSC101 and ANSC103.
**Additional Information:** Students will participate in night watches at the campus farm.

**ANSC250 Companion Animal Care and Management (3 Credits)**
Care and management of the companion small animals. Species covered include the cat, dog, rodents, lagomorphs, reptiles, amphibians, birds and others as class interest and schedule dictate. Basic description, evolutionary development, breeding, nutritional and environmental requirements, and public health aspects will be presented for each species.
**Credit Only Granted for:** ANSC250 and ANSC305.
**Formerly:** ANSC305.

**ANSC252 Introduction to the Diseases of Wildlife (3 Credits)**
The principal diseases of North American wildlife will be briefly considered. For each disease, specific attention will be given to the following: signs evidenced by the affected animal or bird, causative agent, means of transmission and effects of the disease on the population of the species involved.
**Prerequisite:** BSCI105; or (BSCI170 and BSCI171); or permission of AGNR-Animal & Avian Sciences department; or students who have taken courses with comparable content may contact the department.

**ANSC255 Introduction to Aquaculture (3 Credits)**
Introduces the art and science of rearing aquatic animals and the essential principles of aquaculture. Students receive hands-on training in the methods required for successful husbandry and management of aquatic animals in their water environment.
**Prerequisite:** ANSC101 and ANSC103; or must have completed an introductory biology course.

**ANSC260 Laboratory Animal Management (3 Credits)**
A comprehensive course in care and management of laboratory animals. Topics covered include regulations governing the use of animals in research, laboratory animal facility design and management, animal research models, animal health management and husbandry, responsibilities of lab animal workers and career opportunities in the field. Hands-on labs focus on lab animal handling, husbandry and common techniques. Field trips are required, and you must attend a minimum number of field trips which will be held during lab time.
**Prerequisite:** ANSC101 and ANSC103.
**Credit Only Granted for:** ANSC260 or ANSC413.
**Formerly:** ANSC413.

**ANSC262 Commercial Poultry Management (3 Credits)**
Theory and science of rearing poultry and marketing poultry meat and eggs in the commercial sector. Includes current issues, organization of the industry, as well as fundamental biology of the domestic chicken. Students will help raise a flock of broiler chickens. Field trips to commercial poultry operations are required.
**Prerequisite:** ANSC101 and ANSC103.

**ANSC270 Animal Enterprise Management (3 Credits)**
General principles of enterprise organization, management, and operation as applicable to food, livestock, and companion animals. Enterprise planning and establishment, management of financial, human, and animal resources, and other related topics will be investigated.
**Prerequisite:** ANSC101 and ANSC103; or permission of instructor.
**Credit Only Granted for:** ANSC270 or AREC306.

**ANSC282 Grazing Animal Management (3 Credits)**
For students interested in acquiring knowledge and skills in pasture management, grazing management of livestock (large and small ruminants, horses), and hay production. Fundamental information regarding best management practices for soils, plants, and grazing livestock will be covered
**Prerequisite:** ANSC101 and ANSC103; or permission of instructor.
**Credit Only Granted for:** ANSC110, ANSC282, or INAG116.
**Formerly:** ANSC110.

**ANSC314 Comparative Animal Nutrition (3 Credits)**
The fundamental role and implications of dietary preference, gastrointestinal physiology and nutrients in animal nutrition. Biochemical roles of nutrients in metabolism, digestion, absorption and assimilation as it relates to various life processes.
**Prerequisite:** ANSC101 and ANSC103; and (CHEM231, PLSC275 or AGST275).

**ANSC315 Applied Animal Nutrition (3 Credits)**
Elements of nutrition, source characteristics and adaptability of various feedstuffs to several classes of livestock. A study of the composition of feeds, nutrient requirements and computerized formulation of economic diets and rations for livestock.
**Prerequisite:** ANSC314.

**ANSC327 Molecular and Quantitative Animal Genetics (3 Credits)**
Classical, molecular, and population genetics with specific emphasis on animal systems will be covered. Also, disseminate information on molecular approaches for manipulating genetics at the whole animal level (transgenic and cloning). Other model organisms will be discussed to provide a conceptual framework.
**Prerequisite:** ANSC101, CHEM131, and ANSC103. And BSCI105; or (BSCI170 and BSCI171).

**ANSC330 Equine Science (3 Credits)**
Scientific principles of horse behavior, anatomy, physiology, locomotion, nutrition, reproduction, growth, health and disease as applied to horses are emphasized.
**Prerequisite:** ANSC232; or permission of instructor.
**Recommended:** ANSC212 and ANSC211.
**Credit Only Granted for:** ANSC230 or ANSC330.
**Formerly:** ANSC230.

**ANSC340 Health Management of Animal Populations (3 Credits)**
A study of common and emerging animal diseases and their prevention and control. The main focus will be on livestock and poultry diseases. However, zoonotic, wildlife, and laboratory animal diseases will also be discussed along with risk assessment, bioterrorism counter-measures, and animal welfare, especially as these topics interface or impact animals used in food production.
**Prerequisite:** BSCI223; and (ANSC220, ANSC232, ANSC242, ANSC250, ANSC255, ANSC260, or ANSC262).
**Recommended:** ANSC212.
**Credit Only Granted for:** ANSC340 or ANSC412.
**Formerly:** ANSC412.

**ANSC359 Internship Experience in Animal and Avian Sciences (3-6 Credits)**
Experiential learning is a key component in an animal science education. Through the internship program, you will have the opportunity to develop your expertise in a specific species and discipline within the animal science curriculum. You will arrange an on- or off-campus internship experience related to animal science. You will spend a specified number of hours at the internship site each week and attend biweekly classroom sessions where we will discuss how the study of animal science fits into your specific internship experience as well as understand how to achieve each of the course learning outcomes.
**Prerequisite:** ANSC220, ANSC232, ANSC237, ANSC242, ANSC245, ANSC246, ANSC250, ANSC262, or ANSC282.
**Restriction:** Must be in a major within the AGNR-Animal & Avian Sciences department; and permission of instructor.
**Repeatable to:** 6 credits if content differs.
**Additional Information:** Students are required to submit an application to the Animal Science Internship Coordinator to enroll in this course.

**ANSC371 Sustainable Agriculture and Environment in Nicaragua: Seminar (1 Credit)**
Nicaragua is rebuilding its agricultural economy to address multiple goals including reducing poverty, improving food security, as well as decreasing impacts from climate change and decreasing greenhouse gas emissions. The historical, political and social context will be discussed and perspectives will be provided from representatives from diverse groups including farm workers, farm owners, women, and indigenous peoples. Students will see differences between the US and Nicaragua, and in turn, will identify structures that cause those differences.
**Additional Information:** This course is a prerequisite and companion to a winter-term study abroad course, ANSC372, in Nicaragua. For General Education DSSP credit, both ANSC371 and ANSC372 must be completed.

**ANSC372 Sustainable Agriculture and Environment in Nicaragua: Study Abroad (2 Credits)**
Allows students to see, experience, and analyze unique programs in Nicaragua, a country that is rebuilding its agricultural economy to address multiple goals including reducing poverty, improving food security, as well as decreasing impacts from climate change and decreasing greenhouse gas emissions. Students will see differences between the US and Nicaragua, and in turn, will identify structures that cause those differences.
**Prerequisite:** ANSC371.

**ANSC379 Animal Science Undergraduate Teaching Assistant Seminar (2 Credits)**
Seminar course for undergraduate teaching assistants within ANSC.
**Prerequisite:** Permission of instructor.
**Repeatable to:** 8 credits.
**Formerly:** ANSC390.

**ANSC386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Permission of AGNR-Animal & Avian Sciences department.
**Restriction:** Junior standing or higher.

**ANSC388 Honors Thesis Research (3-6 Credits)**
Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.
**Restriction:** Must be in the AGNR Honors program.
**Repeatable to:** 6 credits if content differs.

**ANSC389 Experiential Learning (3-6 Credits)**
**Prerequisite:** Permission of AGNR-Animal & Avian Sciences department.
**Restriction:** Junior standing or higher.
**Repeatable to:** 6 credits if content differs.
**Formerly:** ANSC386.

**ANSC398 Seminar - Research (1 Credit)**
Presentation and discussion of current literature and research work in animal science.
**Prerequisite:** ANSC101 and ANSC103.
**Repeatable to:** 2 credits if content differs.

**ANSC399 Special Problems in Animal Science (1-2 Credits)**
Work assignments are designed to be proportional to the amount of credit. Students are expected to develop an abstract, fact sheet, manuscript, oral presentation, poster, webpage, journal-log, or other scholarly product associated with their study and/or project.
**Prerequisite:** ANSC101 and ANSC103.
**Restriction:** Permission of AGNR-Animal & Avian Sciences department; and junior standing or higher.
**Repeatable to:** 6 credits if content differs.

**ANSC401 Animal Growth and Development for Production Agriculture (3 Credits)**
An integration of the physiological, genetic, and nutritional bases of animal growth, development, and body composition with application to livestock production.
**Prerequisite:** ANSC201.

**ANSC410 The Gut Microbiome and its Roles in Health and Disease (3 Credits)**
A comprehensive perspective of the role of gut microbiome/microflora in nutrition, metabolism, disease prevention and health issues including farm animal health and food value, and human gastrointestinal health and immunity.
**Prerequisite:** BSCI223, ANSC212, ANSC327, EPIB301, BSCI222, BSCI421, or NFSC430; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** ANSC489M or ANSC410.
**Formerly:** ANSC489M.

**ANSC417 Regulatory Issues in Animal Care and Management (3 Credits)**
A study of regulatory issues affecting animal care and management in the livestock industry. Guest speakers and classroom discussions will focus on key topics including animal welfare, feed and drug regulations, animal identification, CAFO management, processing and marketing of animal products.
**Prerequisite:** ANSC220, ANSC232, ANSC242, ANSC250, ANSC255, ANSC260, ANSC262, or ANSC282; or permission of instructor.
**Additional Information:** Field trips may be required for this course.

**ANSC435 Experimental Embryology (3 Credits)**
Experimental approaches to mammalian embryology with emphasis on domestic livestock systems as applied to research and production systems. Lab will include hands-on experiments and demos of in vitro embryo production, embryo splitting, cell injection and nuclear transfer.
**Prerequisite:** ANSC212.
**Recommended:** Completion of one course in reproductive physiology is recommended.
**Credit Only Granted for:** ANSC435 or ANSC489M.
**Formerly:** ANSC489M.

**ANSC436 Animal Health Policy and Communication (3 Credits)**
Intended for upper level students in Veterinary Medicine or Animal Science as well as other students who are interested in understanding how science and politics interact and influence animal health policy and how veterinarians and animal scientists can effectively communicate science to non-scientists such as legislators and policymakers.
**Recommended:** Completion of ANSC225 and ANSC340 recommend.
**Cross-listed with:** VMSC436.
**Restriction:** Must be in a major within the AGNR-Animal & Avian Sciences department; or permission of AGNR-VA-MD Regional COL Veterinary Med.
**Credit Only Granted for:** ANSC489A, ANSC436, or VMSC436.
**Formerly:** ANSC489A.

**ANSC437 Animal Biotechnology (3 Credits)**
Key concepts and current issues in animal biotechnology are covered. Current techniques and applications systems as well as social, ethical, and regulatory issues associated with biotechnology will be discussed.
**Prerequisite:** ANSC327; or students who have taken courses with comparable content may contact the department.

**ANSC440 Zoonotic Diseases and Control (3 Credits)**
Global perspective of foodborne diseases common to animals and man, specifically those caused by farm animal-originated human pathogens (zoonoses) and their control. A selection of important zoonoses and food safety issues will be specifically covered with an emphasis on the principles of zoonotic disease transmission and control, risk factors to humans, and surveillance methods.
**Prerequisite:** BSCI223, ANSC212, ANSC327, BSCI222, BSCI421, or NFSC430; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** ANSC440 or ANSC489R.
**Formerly:** ANSC489R.

**ANSC443 Physiology of Lactation (3 Credits)**
A comprehensive survey of lactation in laboratory and domestic animals. Other species are discussed where possible. Emphasis will be placed on physiological aspects of milk synthesis and secretion and on the cellular and molecular biology of mammary gland development.
**Prerequisite:** ANSC212; and (CHEM231, PLSC275 or AGST275).
**Recommended:** BCHM463.

**ANSC444 Domestic Animal Endocrinology (3 Credits)**
Current developments in endocrinology as it relates to animals used in the production of food and other products important to the well being of humans will be covered.
**Prerequisite:** ANSC212; or permission of instructor.
**Restriction:** Must not have completed ANSC644.
**Credit Only Granted for:** ANSC489I, ANSC444, or ANSC644.
**Formerly:** ANSC489I.

**ANSC445 Comparative Digestive Physiology (3 Credits)**
Comparative gastrointestinal physiology and the pathophysiology of diseases involved in animal-related research. A comparative approach will be presented for much of this material, using the human, canine, porcine, equine, bovine, and avian when information is available. The ultimate aim of the course is to provide a comprehensive knowledge of comparative gastrointestinal pathophysiology, and to give students an insight into the current field of human and veterinary gastroenterology. Students should feel more comfortable reading cutting edge literature by the end of the course, and should acquire a greater understanding of potential digestive disease areas for their future career such as graduate, medical, and veterinary students.
**Prerequisite:** ANSC212.

**ANSC446 Physiology of Mammalian Reproduction (3 Credits)**
Anatomy and physiology of reproductive processes in domesticated and wild mammals.
**Prerequisite:** ANSC212 or BSCI440.

**ANSC447 Physiology of Mammalian Reproduction Laboratory (1 Credit)**
Gross and micro-anatomy, artificial insemination, estrous cycle synchronization and invitro-fertilization procedures and analytical techniques useful in animal management and reproduction.
**Prerequisite:** Must have completed or be concurrently enrolled in ANSC446.

**ANSC450 Animal Breeding Plans (3 Credits)**
Design of animal breeding programs for the genetic improvement of livestock and companion animal species. Principles of population and quantitative genetics. Genetic evaluations of animals, selection strategies and crossbreeding systems. Incorporation of statistics and biotechnology into animal breeding plans.
**Prerequisite:** ANSC101; and 1 course with a minimum grade of C- from (MATH120, MATH136, MATH140, or BIOM301).
**Restriction:** Junior standing or higher.

**ANSC452 Avian Physiology (3 Credits)**
The digestive, excretory, respiratory, circulatory, immune, skeletal muscle, endocrine and nervous systems of avian species will be examined.
**Prerequisite:** ANSC212.
**Restriction:** Junior standing or higher.

**ANSC453 Animal Welfare and Bioethics (3 Credits)**
Ethical concerns related to the use of animals in modern society. Historical and philosophical overview of animal welfare and bioethics. Applied ethical discussions on human/animal interrelationships, physical and genetic manipulation, and other current issues associated with the treatment of animals used in food production, research, zoos, and as pets.
**Prerequisite:** ANSC101 and ANSC103; or BSCI106; or (BSCI160 and BSCI161); or permission of instructor.
**Restriction:** Junior standing or higher.

**ANSC454 Nutritional Aspects of Metabolic Disease (3 Credits)**
Biochemical and physiological fundamentals of nutrition. Discussion of protein, fat,carbohydrate, minerals and vitamins and their roles and interrelationships innutrition, metabolism and diseases in humans and animals. The course will use recommended texts for foundation material as well as research papers to provide in-depth coverage and illustrate emerging themes in metabolic aspects of nutrition and disease.
**Prerequisite:** CHEM131 and ANSC101, or BSCI170; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** ANSC4890 or ANSC454.
**Formerly:** ANSC489O.

**ANSC455 Applied Animal Behavior (3 Credits)**
Principles of animal behavior applied to production systems in animal agriculture.
**Prerequisite:** ANSC101 and ANSC103; or BSCI106; or (BSCI160 and BSCI161).

**ANSC460 Comparative Vertebrate Immunology (3 Credits)**
Basic concepts in immunology, and comparing immunity in different vertebrates, including organization of immune systems, innate and adaptive immune responses. Special attention will be paid to how cell-mediated and humoral immune responses are induced in natural infections, and what are the effector mechanisms in both of these processes. Immune response in representative disease models such as infections with viruses and bacteria, cancer, and autoimmune disease will be discussed. Lectures concerning cutting-edge research will also be given.
**Prerequisite:** ANSC212, BSCI201, or BSCI440.
**Credit Only Granted for:** ANSC460 or ANSC489I.
**Formerly:** ANSC489I.

**ANSC489 Current Topics in Animal Science (1-3 Credits)**
Examination of current developments in the animal sciences.
**Repeatable to:** 6 credits if content differs.

**ANSC497 Animal Biotechnology Recombinant DNA Laboratory (3 Credits)**
An advanced course offering hands-on experience in performing recombinant DNA experiments. Current molecular biology techniques used for cloning genes, analyzing the gene products, and modifying the genes of animals will be performed. Techniques include isolation of DNA, use of restriction enzymes; cloning procedures, PCR analysis, and Southern hybridizations. Lecture material focuses on interpretation of results generated in the laboratory.
**Prerequisite:** ANSC327; or students who have taken courses with comparable content may contact the department.
**Recommended:** ANSC437 and ANSC435.

# ANTH - Anthropology

**ANTH138 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ANTH210 Introduction to Medical Anthropology and Global Health (3 Credits)**
An introduction to the central concepts in medical anthropology and the anthropology of global health. This course is a survey of anthropological notions of health, disease, and the body in cross-cultural and global contexts, including classic and contemporary texts. It will provide an examination of systems of knowledge and practice with regard to illness, healing, and global health inequities.

**ANTH221 Introduction to Forensic Sciences (3 Credits)**
Provides a brief history of forensic sciences, an introduction to some of the techniques used, and a demonstration of some of the applications of forensic sciences. A survey course designed to give the student some exposure to the kinds of scientific knowledge and techniques applied to the medico-legal investigation of death and other crimes.
**Credit Only Granted for:** ANTH298A or ANTH221.
**Formerly:** ANTH298A.

**ANTH222 Introduction to Ecological and Evolutionary Anthropology (4 Credits)**
An introduction to the evolution of human physiology and human behavior, the relationship between hominid and non-hominid primates, and the study of relationships between a population of humans and their biophysical environment.
**Credit Only Granted for:** ANTH220 or ANTH222.

**ANTH238 Special Topics Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ANTH240 Introduction to Archaeology (3 Credits)**
Exploration of the variety of past human societies and cultures through archaeology, from the emergence of anatomically modern humans to the more recent historical past.

**ANTH242 Fire, Farming and Climate Change: An Archaeology Take on the History of Human Impacts on our Planet (3 Credits)**
An examination of why climate changes, the methods for recording climate change, and case studies of the varied responses of past human societies to climate change in different geographic regions and time periods with varying socio-political and economic systems.

**ANTH260 Introduction to Sociocultural Anthropology and Linguistics (3 Credits)**
Culture and social relationships in a wide variety of settings from small-scale to complex societies. An overview of how anthropology analyzes human behavior. Particular attention to the relationship between language and culture.

**ANTH263 Sexuality and Culture (3 Credits)**
An overview of sexuality from an anthropological perspective, looking at aspects of sexuality within our own culture and in cultures around the world. Course topics include the biology and culture of sex, gender, physical attraction, sexual orientation, marriage and mating taboos, fertility control, sexually transmitted diseases, and commercial aspects of sex.
**Credit Only Granted for:** ANTH298K or ANTH263.
**Formerly:** ANTH298K.

**ANTH264 Immigration Policy, Immigrant Lives (3 Credits)**
An examination of the phenomenon of international migration, or immigration. Students develop awareness of how immigration has been framed in the general public and examined by social science disciplines, most prominently anthropology. Examination of case studies of different immigrant groups in distinct geographic contexts will illuminate the varied incorporation experiences of immigrants into U.S. society.
**Cross-listed with:** IMMR219C.
**Credit Only Granted for:** ANTH264 or IMMR219C.

**ANTH265 Anthropology of Global Health (3 Credits)**
An overview of the growing field of global health including health care systems, medical practices, ideas about illness in cross-cultural contexts, issues of health development, global health inequity, and human rights issues. The course will focus on the history of global health, the critique of major international health agencies and their development paradigms, and the political economy of social inequalities and health.

**ANTH266 Changing Climate, Changing Cultures (3 Credits)**
Explore past, present, and future interactions between humans and climate. Discussions, methods-oriented activities, and case study analyses provide students a foundation for appreciating the role of anthropology in understanding, responding to, and preparing for climate change.

**ANTH267 Organic, Mechanical, Digital (3 Credits)**
Beginning in the middle to late 20th century, human organization and experience has increasingly been influenced by digital forms of communication and production. Do these changes make us new types of people and societies? By putting the digital world in the context of the major periods associated with organic and mechanical technology, this course examines who contemporary people are and whether or not they are unique. The answer to this question will focus on how technological changes the individual, social organization and the relationship with the natural world. Sources from historians, anthropologists, sociologists, philosophers, political scientists and ecologists will be used to reconstruct these worlds.

**ANTH298 Special Topics in Anthropology (3 Credits)**
Anthropological perspectives on selected topics of broad general interest.
**Repeatable to:** 6 credits if content differs.

**ANTH305 Archaeological Methods and Practice (3 Credits)**
A team-taught, interdisciplinary course discussing theories, methods, and ethical issues in the practice of archaeology.
**Prerequisite:** ANTH240, ARTH200, or CLAS180.
**Cross-listed with:** ARTH305, CLAS305, JWST319Y.
**Credit Only Granted for:** ANTH305, ARTH305, CLAS305, or JWST319Y.

**ANTH310 Method & Theory in Medical Anthropology and Global Health (3 Credits)**
Provides a critical perspective to global health that encompasses key political, economic, and cultural factors associated with the nature and magnitude of global health issues such as HIV/AIDS, tuberculosis and malaria, paying particular attention to how poverty and inequalities within and between societies has accelerated current global health challenges. Introduces students to how medical anthropologists have contributed to the debates surrounding the globalization of health.
**Prerequisite:** ANTH210. Jointly offered with ANTH665.
**Credit Only Granted for:** ANTH310, ANTH465, or ANTH665.
**Formerly:** ANTH465.

**ANTH322 Method and Theory in Ecological Anthropology (3 Credits)**
A theoretical consideration of ecological anthropology, focusing on issues related to cooperation, the management of common property, resilience, and sustainability. Explores the methods of sociocultural anthropology, including ethnology, evolutionary game theory and agent-based modeling; and natural-science approaches including behavioral and systems ecology.
**Prerequisite:** ANTH220 or ANTH222.
**Restriction:** Must be in a major within the BSOS-Anthropology department.
**Credit Only Granted for:** ANTH320, ANTH322, ANTH425, or ANTH625.

**ANTH323 Plagues, Pathogens and Public Policy (3 Credits)**
The impact of diseases on populations from prehistoric times through the present will be examined, along with public perceptions of disease, scientific breakthroughs on treatment and prevention, and the ways that politics and public health policies can enhance or impede the advancement of disease treatment. The natural history of disease, population structure, and immunity will be discussed. The class will address emerging and re-emerging diseases and the ways that first responders, researchers, and policy makers may affect the outcome of an outbreak.
**Credit Only Granted for:** ANTH429A or ANTH323.
**Formerly:** ANTH429A.

**ANTH338 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ANTH340 Method and Theory in Archaeology (3 Credits)**
Theory, method, and practice which guides modern anthropological archaeology. Includes research design and execution (from survey through excavation and interpretation), the reconstruction of aspects of past cultures, and the understanding of cultural change and meaning.
**Prerequisite:** ANTH240.
**Restriction:** Must be in Anthropology program; or permission of BSOS-Anthropology department.

**ANTH341 Introduction to Zooarchaeology (3 Credits)**
Zooarchaeology is the study of animal remains, especially bones, from archaeological contexts. This course will address both methodology as well as many of the main issues in contemporary zooarchaeology. Zooarchaeology stands at the intersection of a number of social and biological sciences, such as Biology, Osteology, Ecology, History, Anthropology and Economics. We will discuss basic animal osteology and the concepts and practices behind the identification of animal remains from archaeological contexts. We will cover the nature of the data in zooarchaeology, especially issues around using proxy data.
**Credit Only Granted for:** ANTH298D, ANTH641 or ANTH341.
**Formerly:** ANTH298D.

**ANTH345 Introduction to Laboratory Methods in Archaeology (3 Credits)**
The processing, curation, cataloging and analysis of data is an important part of any archaeology field project. Students will learn the basics of laboratory techniques necessary for the final analysis and interpretation of field data.

**ANTH358 Undergraduate Teaching Assistant (1-3 Credits)**
Individual instruction course: contact department or instructor to obtain section and index numbers.
**Prerequisite:** ANTH220, ANTH260, or ANTH240.
**Restriction:** Junior standing or higher; and must be in Anthropology program.
**Repeatable to:** 6 credits if content differs.

**ANTH360 Method and Theory in Sociocultural Anthropology (3 Credits)**
Theoretical approaches and research methods in sociocultural anthropology. Emphasis on current debates, new directions, and their historical antecedents.
**Prerequisite:** ANTH260.
**Restriction:** Must be in Anthropology program; or permission of BSOS-Anthropology department.

**ANTH368 Regional Ethnography (3 Credits)**
Peoples and cultures of a particular region of the world, on the basis of ethnographies, archaeological evidence, and relevant works by social historians and political economists. The regional focus and thematic emphasis will vary by semester.
**Prerequisite:** ANTH260; or permission of BSOS-Anthropology department.
**Repeatable to:** 6 credits if content differs.

**ANTH380 Culture and Discourse (3 Credits)**
Contemporary discourse analysis and pragmatics applied to ethnographic research problems with particular attention to roots in recent linguistic anthropological work in ethnographic semantics and ethnography of speaking.

**ANTH386 Experiential Learning (1-6 Credits)**
**Recommended:** Completion of advanced courses in relevant subfield of anthropology recommended.
**Restriction:** Permission of BSOS-Anthropology department; and junior standing or higher; and must be in Anthropology program.

**ANTH398 Independent Study (1-3 Credits)**
Independent interdisciplinary research and reading in specific areas of anthropology.
**Restriction:** Permission of BSOS-Anthropology department.
**Repeatable to:** 9 credits if content differs.

**ANTH407 Anthropology and Development (3 Credits)**
An examination of the intersection of Anthropology, international development and foreign policy. The course provides students with conceptual tools to engage with international development and other assistance projects in areas including conservation and climate change, governance and human security, gender, human rights, and political stability from a variety of viewpoints.
**Jointly offered with:** ANTH607.
**Credit Only Granted for:** ANTH407 or ANTH607.

**ANTH411 Global Migration and Health (3 Credits)**
The United Nations estimates that some 230 million people around the world are migrants who live outside their country of birth. This course focuses on these migrant populations, considering the implications of movement across borders and settlement in new societies on their health and well-being. We will investigate the social, political, and economic structures that shape disease and illness and produce differential access to health care for migrants. Within that context, we will explore the health effects of migration itself and particular health conditions from which migrants suffer. We will also examine how migrants interface with differently configured health care systems as well as strategies they and their advocates use to promote health and well-being.
**Jointly offered with:** ANTH611.
**Credit Only Granted for:** ANTH411 or ANTH611.

**ANTH412 Hypermarginality and Urban Health (3 Credits)**
Using perspectives from medical and urban anthropology, we examine the phenomenon of hypermarginality--the clustering of extreme poverty, chronic disease, addiction, violence and trauma in certain social and spatial contexts, often urban. We will explore both the broader social, political, and economic structures of exclusion that produce hypermarginality, as well as the illness experiences associated with these conditions. As we consider both social suffering and the related institutional responses, we will also discuss the role of anthropological approaches in national discussions about health inequities.
**Credit Only Granted for:** ANTH412 or ANTH612.

**ANTH413 Health Disparities in the United States (3 Credits)**
Powerful economic, political, social, and cultural forces shape who gets sick, what illnesses/diseases they get, how they are treated while seeking care, what treatment options they have, and what their ultimate health outcomes are. The goal of the course is to understand these processes through the lens of critical medical anthropology
**Credit Only Granted for:** ANTH468Q, ANTH688Q, ANTH413, or ANTH613.
**Formerly:** ANTH468Q.

**ANTH415 Critical Global Health (3 Credits)**
Extends understandings of diverse health conditions facing world populations today and the science being made around them. Critically examines key issues in global aid and public health, with an emphasis on the theories, concepts, and methods of anthropology.
**Recommended:** ANTH210, ANTH310, or ANTH265 or a similar course focused on global health or medical anthropology course.
**Jointly offered with:** ANTH615.
**Credit Only Granted for:** ANTH415 or ANTH615.

**ANTH416 Anthropology of Global Violence (3 Credits)**
An examination of anthropological approaches to the study of violence, drawing from key texts to analyze how violence operates along a continuum: from routine, sometimes invisible forms of violence embedded in everyday life, to more overt and exceptional forms. Consideration of the role of ethnography in elucidating both the subjective experiences of violence and the ways in which violence is embedded in institutions, structures, and global political-economic processes. Analysis of the specific relationships between violence, health, mental health, and trauma in local and global contexts.Jointly offered with ANTH616.
**Credit Only Granted for:** ANTH468O, ANTH66 8O, ANTH416 or ANTH616.
**Formerly:** ANTH468O.

**ANTH421 Nutritional Anthropology (3 Credits)**
The study of nutrition from an anthropological perspective which includes both biological and cultural aspects of nutrition. We will explore how nutrition can affect culture how culture can affect nutrition. Nutritional anthropology includes the study of cross-cultural variation in diet, nutritional status and subsistence systems as well as variation in these factors over the evolutionary course of human existence, from prehistoric and historic to modem times. Students will be introduced to nutritional anthropology and provided with the basics for assessing reliability and feasibility of nutritional advice and policy encountered in everyday modern life in a global setting.
**Credit Only Granted for:** ANTH421, ANTH428N, or ANTH621.
**Formerly:** ANTH428N.

**ANTH422 Human-Plant-(Human & Bioactive Plant) Interaction (3 Credits)**
This seminar course will discuss the evolutionary, historical, cultural, and ecological aspects of coevolution with respect to humans and their interactions with specific bioactive plants. Case studies of human- plant-(pathogen) interactions will be discussed as well as an inclusive survey of anthropologically important phytochemicals. The seminar incorporates human-plant-(pathogen) interactions into models of human evolution and ecology.
**Prerequisite:** ANTH220 and ANTH320; or permission of BSOS-Anthropology department.
**Credit Only Granted for:** ANTH422.
**Formerly:** ANTH428I.

**ANTH424 Human Skeletal Anatomy (3 Credits)**
In addition to descriptive information about bone identification, the lectures will address the history of human anatomical studies, the development of analytical techniques, and the application of these techniques in paleoanthropology, comparative anatomy, functional anatomy (and related fields, such as physical therapy), and skeletal analysis in museum, historic cemetery, archaeological, and forensic settings. Emphasis will be on the development of the skeleton and recognition of normal variation in bones. The laboratory sessions will allow the students access to human bones for the purpose of identification, documentation of human variation, and application of techniques to obtain information about the living individual from the skeleton.

**ANTH428 Special Topics in Bioanthropology (3 Credits)**
Advanced research courses in biological anthropology on changing topics that correspond to new theoretical interests, faculty research interests, or the specialties of visiting scholars. Prerequisites or background knowledge vary with the topic. Check with the department for requirements.
**Repeatable to:** 6 credits if content differs.

**ANTH429 Advanced Special Topics in Biological Anthropology (3 Credits)**
Upper level biological anthropology courses on varying topics derived from new interests of the faculty or the specialties of visiting scholars.
**Repeatable to:** 6 credits if content differs.

**ANTH433 Archaeology of Slavery: Classical, Caribbean and North American Contexts (3 Credits)**
Has slavery always existed? Does it come and go? North American plantation archaeology has become one of the foundations for understanding African American culture from the 1960s. Slavery in Antiquity existed in Greece and Rome on large scales and was essential to making commercial agriculture profitable work. Slavery in the Caribbean showed Europeans how to make a profit from African bodies. Trafficking in human persons today is recorded by the U.S. State Department annually and is regarded as modern slavery. These varying contexts of slavery will be compared in an attempt to understand slavery scientifically.
**Jointly offered with:** ANTH633.
**Credit Only Granted for:** ANTH433 or ANTH633.

**ANTH435 Archaeological Ethnography and Heritage Ethnography (3 Credits)**
Archaeologists and other heritage experts are increasingly incorporating ethnographic approaches as part of their methodological toolkit. This course explores key methods and frameworks in archaeological ethnography and heritage ethnography, set within the broader contexts of the historical development of anthropological theory and the current rapid growth of heritage studies as an interdisciplinary field of research and practice.
**Jointly offered with:** ANTH635.
**Credit Only Granted for:** ANTH435 or ANTH635.

**ANTH438 Special Topics in Study Abroad IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ANTH440 Theory and Practice of Historical Archaeology (3 Credits)**
Historical archaeology enhances cultural heritage by providing voice for groups who were often unable to record their own histories, such as women, laborers, working class families, and enslaved people. The course provides insight into issues related to race, gender, and ethnicity as they relate to multicultural histories.
**Prerequisite:** ANTH240. Jointly offered with ANTH640.
**Credit Only Granted for:** ANTH440 or ANTH640.

**ANTH441 Archaeology of Diaspora (3 Credits)**
"Diaspora" is defined, theorized, deconstructed, and employed throughout the social sciences. There are context specific relations that define who leaves, when, and how they are received in the new place of settlement. Over the course of the semester the class will actively and critically examine the relevance of historical archaeology and material culture studies in the understanding of the formation, experiences, and transformation of diasporic groups over time and space.
**Prerequisite:** ANTH240.
**Credit Only Granted for:** ANTH448A, ANTH688Z, or ANTH441.
**Formerly:** ANTH448A.

**ANTH442 Public Archeology (3 Credits)**
Explores the uses and environments for archaeological work through a discussion of museum, electronic media, heritage settings, outdoor history museums, including the legal environment that offers protection for archaeological remains. The course exposes students to the majority of cultural media within which archaeology is currently practiced. The interdisciplinary course is a survey of the progress made within and beyond anthropology in understanding the function of heritage, public memory, tourism, and the other popular uses of materials from the past, including the progress made in linguistics psychology and other cognitive disciplines in understanding the purpose of the past.
**Credit Only Granted for:** ANTH442, ANTH448V, or ANTH642.
**Formerly:** ANTH448V.

**ANTH444 Theories of the Past (3 Credits)**
The primary purpose is to highlight some of the key achievements made by archaeologists in informing questions of interest to society from 1850 on. Key achievements include how archaeologists understand elements of the past thought to be central to the development of modern socieity. A secondary purpose is to introduce students to the theories used to understand the place of the past in society and the function of answers to questions thought central to modern social life.
**Prerequisite:** ANTH240. Jointly offered with ANTH740.
**Credit Only Granted for:** ANTH448P, ANTH444, or ANTH740.
**Formerly:** ANTH448P.

**ANTH445 Laboratory Methods in Archaeology (3 Credits)**
The processing, curation, cataloging and analysis of data is an important part of any archaeology field project. Students will learn that basics of laboratory techniques necessary for the final analysis and interpretation of field data.
**Prerequisite:** ANTH496.
**Recommended:** ANTH240.

**ANTH447 Material Culture Studies in Archaeology (3 Credits)**
An in-depth introduction to the world of material culture studies with a focus on the methods and theories in historical archaeology. Students will look at archaeological data as historical documents, commodities and as symbols expressing ideas.
**Prerequisite:** ANTH240.
**Credit Only Granted for:** ANTH447, ANTH448C, ANTH647, or ANTH689C.
**Formerly:** ANTH448C.

**ANTH448 Special Topics in Archaeology (3 Credits)**
Advanced topics in archaeological research, corresponding to new theoretical developments, faculty research interests, or specialties of visiting scholars. Prerequisites may vary with course topic; check with the department for requirements.
**Prerequisite:** ANTH240.
**Repeatable to:** 6 credits if content differs.

**ANTH449 Advanced Special Topics in Archaeology (3 Credits)**
Upper level archaeology courses on varying topics derived from new interests of the faculty or the specialties of visiting scholars.
**Repeatable to:** 6 credits if content differs.

**ANTH450 Theory and Practice of Environmental Anthropology (3 Credits)**
An overview of contemporary application of cultural theory and methods to environmental problems. Topics include the use of theories of culture, cognitive approaches, discourse analysis, and political ecology. Case studies from anthropology, other social sciences, humanities, conservation, and environmental history are used to demonstrate the applied value of a cultural-environmental approach.
**Restriction:** Junior standing or higher. Jointly offered with ANTH650.
**Credit Only Granted for:** ANTH450 or ANTH650.

**ANTH451 Environmental Archaeology (3 Credits)**
An overview of modern environmental archaeology as a tool for the interdisciplinary investigation of past and present global change and to engage the long term past with current issues of sustainability and rapid environmental change.
**Credit Only Granted for:** ANTH451, ANTH651, ANTH448F, ANTH668F.
**Formerly:** ANTH448F.

**ANTH452 Anthropology and Climate Change (3 Credits)**
Human activities now influence ongoing global climatic change, and the outcome remains uncertain for communities and cultures around the world. This interaction between humans and climate provides a rich area of study for anthropologists in an interdisciplinary context. Case studies of historic and contemporary evidence will be used to understand impacts of global climate change and assess opportunities and barriers to successful responses and adaptation.
**Prerequisite:** ANTH220, ANTH222, ANTH240, or ANTH260.
**Credit Only Granted for:** ANTH452 or ANTH652.

**ANTH453 Archaeology of the Modern City (3 Credits)**
An overview of how social scientists, in particular historical archaeologists, approach modern cities as being part of the materiality of the social structure and order.
**Prerequisite:** ANTH240; or permission of instructor.
**Credit Only Granted for:** ANTH448Q or ANTH453.
**Formerly:** ANTH448Q.

**ANTH454 Political Ecology (3 Credits)**
The use of the environment is contested and negotiated within historic and contemporary societies. Incorporating methods and perspectives from across the social sciences through specific case studies in the Americas, Europe, Asia and Africa, this course offers a survey to coupled human-environmental systems.
**Jointly offered with:** ANTH654.
**Credit Only Granted for:** ANTH454 or ANTH654.

**ANTH456 Conservation and Indigenous People in South America (3 Credits)**
Considers indigenous peoples and their relation to the lands on which they live, issues of traditional indigenous knowledge and land management as well as new contributions by indigenous peoples to changing landscapes. Reviews legal mechanisms and instruments through which indigenous peoples have rights to the resources they occupy and utilize. Taking specific cases and examining them through the lens of political and social ecology, the role of indigenous peoples in local and worldwide conservation efforts is considered. Case studies will emphasize the indigenous peoples and conservation policies of Latin America.
**Jointly offered with:** ANTH656.
**Credit Only Granted for:** ANTH468L, ANTH456, ANTH688L, or ANTH656.
**Formerly:** ANTH468L.

**ANTH461 Language as Practice (3 Credits)**
An introduction to linguistic variation and the construction of identity, relationship, and community membership through language use. The approach emphasizes language as community-based practice and examines the dynamic construction of social relations through linguistic interactions.
**Jointly offered with:** ANTH661.
**Credit Only Granted for:** ANTH461, ANTH468I or ANTH661.
**Formerly:** ANTH468I.

**ANTH462 Amazon Through Film (3 Credits)**
An interdisciplinary course that utilizes film to consider the Amazon basin, its history, peoples, and landscapes through cinematic representations. The course places the films in the context of film history and critical theory. The course takes into consideration the Brazilian, North American, Mexican, European and Argentine creators of the films and their visions of Amazonia, as well as the audiences and markets to which the films are intended.
**Credit Only Granted for:** ANTH468D or ANTH462.
**Formerly:** ANTH468D.

**ANTH463 Climate Cultures (3 Credits)**
Climate change is an inherently global problem. To a significant degree, its causes and consequences are cultural in nature: Climate change impacts, mitigation and adaptation efforts are perceived and addressed in culture-specific ways. This course will be an overview of the holistic and anthropological approaches to the study of how culture frames what we know and how we respond to climate change. Readings, lectures, and discussions will focus on how culture is expressed through the interplay of processes and practices in specific economic, social and political contexts.

**ANTH464 Anthropology of Cultural Heritage (3 Credits)**
A global exploration of how the past is remade in the present. Covers the breadth of scope and specific interventions of heritage practice at the global scale, including the social, political, economic, and ethical dimensions of cultural heritage.
**Prerequisite:** ANTH260. Jointly offered with ANTH664. Credit only grant ed for: ANTH469T, ANTH689T, ANTH464, ANTH664.
**Formerly:** ANTH469T.

**ANTH465 Ethnoecology: Nature, Knowledge and People (3 Credits)**
Introduces theory and methodology from ethnoecology, the study of human relationships with and knowledge about the environment. Students will examine human relationships with both biotic (e.g. plants and animals) and abiotic (e.g. glaciers, weather) elements of ecological systems to better understand how knowledge frameworks and cultural practices shape human experiences of the natural world. The history of ethnoecology as a discipline will be covered, before moving to case studies where different ecological knowledge systems come into contact via conservation projects, bioprospecting, and other contemporary issues. Involves both discussion and project-based learning with GIS, cultural domain analysis, and ethnographic methods.
**Credit Only Granted for:** ANTH465 or ANTH688E.

**ANTH466 Anthropology of Work (3 Credits)**
Examines the concept and meaning of work, the different types of work, and how the development of time discipline became essential for the creation of capitalist labor. Explores the contemporary social justice movement and its impact on gender and racialized inequities. Includes an exploration of deindustrialized regions in the Rust Belt.
**Jointly offered with:** ANTH666.
**Credit Only Granted for:** ANTH466 or ANTH666.

**ANTH467 Researching Environment and Culture (3 Credits)**
In this applied course, students use mixed methods to research a locally-based, environmental sustainability issue. Classroom time will be split between seminar discussions of theory, methods, and relevant case studies, and lab work focused on project development, data analysis, and report write up. Students are expected to spend additional time outside class on data collection, analysis, and writing
**Recommended:** ANTH322, ANTH360, ENSP101, or ENSP102.

**ANTH468 Special Topics in Cultural Anthropology (3 Credits)**
Advanced courses in varying specialty areas of cultural anthropology that respond to new theoretical developments, faculty research interests, or specialties of visiting scholars.
**Repeatable to:** 6 credits if content differs.

**ANTH469 Advanced Special Topics in Cultural Anthropology (3 Credits)**
Upper level cultural anthropology courses on varying topics derived from new interests of the faculty or the specialties of visiting scholars.
**Repeatable to:** 6 credits if content differs.

**ANTH473 Native American Languages and Cultures (3 Credits)**
An introduction to Native American Languages and Cultures from a linguistic anthropological perspective. Topics to be explored include Native American identities, the stucture of Native languages, oral traditions, narrative story-telling, Native language and thought (Sapir/Whorf), language shift, linguistic revitalization, documentation of endangered languages, indigenous representation and appropriation, and racializing discourses.
**Jointly offered with:** ANTH673.
**Credit Only Granted for:** ANTH473 or ANTH673.

**ANTH474 Language Racism & Identity (3 Credits)**
An exploration of the relationship between language, identity and racism in a variety of social contexts, in the U.S. and elsewhere.
**Jointly offered with:** ANTH674.
**Credit Only Granted for:** ANTH474, ANTH469R, ANTH674, or ANTH689R.

**ANTH476 Senior Research (3-4 Credits)**
Capstone course in which students pursue independent research into a current problem in anthropology, selected with assistance of a committee of faculty. Research leads to the writing of a senior thesis in anthropology.
**Restriction:** Must be in Anthropology program.
**Credit Only Granted for:** ANTH476 or ANTH486.

**ANTH477 Senior Thesis (3-4 Credits)**
Capstone course in which students write a senior thesis on independent research into a current problem in anthropology. The thesis is defined before a committee of faculty.
**Prerequisite:** ANTH476.
**Restriction:** Permission of BSOS-Anthropology department; and must be in Anthropology program.
**Credit Only Granted for:** ANTH477 or ANTH487.

**ANTH478 Special Topics in Linguistics (3 Credits)**
Advanced courses in specialty areas that respond to new theoretical developments and faculty research interests in linguistics.
**Recommended:** LING200.
**Repeatable to:** 6 credits if content differs.

**ANTH481 Environmental Ethnographies of Asia (3 Credits)**
Examines social and ecological environments in Asia through the lens of classic and contemporary ethnographies from across the continent. Considers how cultural, political and economic dynamics interact with ecological systems in both recurring and unexpected ways. Ethnographies include case studies of global commodity chains, technoscientific management, borders and migration, conservation, and local knowledge as they intersect with changing environments.
**Credit Only Granted for:** ANTH481 or ANTH681.

**ANTH485 Honors Research Preparation (3 Credits)**
Honors Research Preparation is an independent study course during which the Honors candidate will work with their Honors Thesis Advisor to establish not only the structure of the thesis and timeline, but also the formation of Thesis Review Committee.
**Restriction:** Permission of BSOS-Anthropology department; and must be in Anthropology program; and must be admitted to University Honors Program or Anthropology Honors Program.

**ANTH486 Honors Research (3-4 Credits)**
Capstone course in which students pursue independent research into a current problem in anthropology, selected with assistance of a committee of faculty. Research leads to the writing of an honors thesis in anthropology.
**Restriction:** Permission of BSOS-Anthropology department; and must be in Anthropology program; and must be admitted to University Honors Program or Anthropology Honors Program.
**Credit Only Granted for:** ANTH486 or ANTH476.

**ANTH487 Honors Thesis (3-4 Credits)**
Capstone course in which students write a thesis on the results of independent research into a current problem in anthropology.
**Prerequisite:** ANTH486.
**Restriction:** Permission of BSOS-Anthropology department; and must be in Anthropology program; and must be admitted to University Honors Program or Anthropology Honors Program.
**Credit Only Granted for:** ANTH487 or ANTH477.

**ANTH496 Field Methods in Archaeology (6 Credits)**
Field training in the techniques of archaeological survey and excavation.

**ANTH498 Advanced Field Training in Ethnography (1-8 Credits)**
Experience in field research utilizing a variety of ethnographic methods of inquiry.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** ANTH498 or ANTH698.

# AOSC - Atmospheric and Oceanic Science

**AOSC123 Causes and Consequences of Global Change (3 Credits)**
Study of the major components of Earth's climate system and climate change history. Discussion of 21st century climate change prediction, mitigation and adaptation efforts.
**Cross-listed with:** GEOL123.
**Credit Only Granted for:** AOSC123, GEOG123, or GEOL123.

**AOSC200 Weather and Climate (3 Credits)**
What are weather and climate? Most people think they know but if you ask people to explain the differences and similarities you're bound to get a range of answers. Weather affects not just our daily activities but other important aspects of society such as transportation, commerce, security and agriculture. Most people understand what weather is to some extent. Climate and climate change are concepts that evoke strong emotional responses from people but are less well understood. In this class, students examine fundamental issues such as the greenhouse effect, severe weather, and global weather patterns and how they relate to a changing climate. Instruction in the lectures will provide the basic knowledge needed to understand these issues. In the discussion sections, students will be divided into groups to address the implications of these topics through group projects.
**Prerequisite:** MATH107, MATH110, or MATH115.
**Recommended:** Concurrent enrollment in AOSC201.

**AOSC201 Weather and Climate Laboratory (1 Credit)**
Laboratory exercises to supplement AOSC200, including weather observations, weather map analysis, forecasting practice and climate modeling.
**Corequisite:** AOSC200.

**AOSC247 Scientific Programming: Python (3 Credits)**
A comprehensive introduction to scientific computation and visualization techniques with Python applied to data intensive questions in the Natural Sciences. The class emphasizes real-world applications, providing students with essential hands-on experience using Python for data analysis and visualization, developing analytical skills for observational and modeling data, and performing virtual experiments to distinguish data contributing factors. Students will gain an understanding of the scientific data issues including: signal vs noise, trend vs periodicity, mean vs extreme changes, and accuracy vs uncertainty. Students will gain extensive experience using command line linux. Skills including local and remote file transfer and synchronization, file and directory permission, utilities for diagnosing performance issues, and data compression.
**Prerequisite:** MATH140.
**Recommended:** Familiarity with basic descriptive statistics.
**Credit Only Granted for:** AOSC458J or AOSC247.
**Formerly:** AOSC458J.

**AOSC358 Special Topics in Atmospheric and Oceanic Science (1-4 Credits)**
Special topics in atmospheric and oceanic science are given intensive study. The topic of concentration varies, from semester to semester and depends on student and faculty interests. Often, specialists from other institutions are invited to the campus on a visiting lectureship basis to conduct the course.
**Repeatable to:** 12 credits.

**AOSC375 Introduction to the Blue Ocean (3 Credits)**
The global ocean is a major component of the Earth System that shapes life on earth, including our weather and climate. We explore the observation-based interdisciplinary science of oceanography, identifying its strong connections to related sciences like meteorology, and geography. We apply this developing understanding to environmental issues such as marine pollution, fish and fisheries, as well as to climate variability and to the changes to the marine environment that are resulting from steadily rising levels of atmospheric greenhouse gasses. Focusses include the biogeochemical and physical changes we can observe in the nearby Chesapeake Bay and the coastal waters of Eastern Shore, Maryland.
**Prerequisite:** MATH120 or higher.
**Recommended:** MATH121, MATH141, PHYS161, or PHYS171.
**Cross-listed with:** GEOL375.
**Credit Only Granted for:** AOSC375 or GEOL375.

**AOSC386 Experiential Learning (3-6 Credits)**
Experiential learning in atmospheric and oceanic science.
**Restriction:** Junior standing or higher; and must have a learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor and student's internship sponsor.

**AOSC399 Independent Study in Academic Peer Mentoring (1-3 Credits)**
Earn academic credit for the time spent supporting an AOSC course in the Academic Peer Mentoring Program (AMP).
**Corequisite:** TLTC333.
**Repeatable to:** 6 credits.

**AOSC400 Physical Meteorology (3 Credits)**
The application of basic classical physics, chemistry and mathematics to the study of the atmosphere. Composition of the atmosphere; energy sources and sinks (radiation in the atmosphere; radiative balance and radiative forcing of atmospheric processes); atmospheric thermodynamics; clouds and precipitation physics; atmospheric electricity and optics; mesoscale processes (e.g., orographic mesoscale phenomena and instabilities); air mass boundaries; severe weather, tropical cyclones; storms; global circulation.
**Prerequisite:** 1 course with a minimum grade of C- from (PHYS171, PHYS161, MATH141); or permission of CMNS-Atmospheric & Oceanic Science department.

**AOSC401 Climate Dynamics and Earth System Science (3 Credits)**
Introduction of the earth and global climate systems and their major components: atmosphere, land, ocean, biosphere and cryosphere. Key processes governing the function of the earth's climate: Global energy balance and water cycle, climate dynamics (general circulation of the atmosphere and ocean) and climate physics (aerosol, cloud and rain), as well as climate variability and climate changes. Phenomena resulting from this coupled system including El Nino-Southern Oscillation, monsoons, and the hydrological cycle will be discussed, with a focus on how the Earth System responds to global warming.
**Prerequisite:** AOSC400 or AOSC200; and MATH141; and (PHYS161 or PHYS171). Or permission of instructor.

**AOSC420 Physical Oceanography (3 Credits)**
Ocean observations. Water masses, sources of deep, intermediate, and surface water. Mass, heat, and salt transport, and the meridional overturning circulation. Geochemical tracers and cycles, including carbon. Western boundary currents, mixed layers, and processes maintaining the thermocline. Coastal and estuarine processes. Surface waves and tides. the ocean's role in climate.
**Prerequisite:** MATH141 and PHYS141.
**Recommended:** AOSC200. Also offered as: GEOL670, AOSC670.
**Credit Only Granted for:** AOSC420, AOSC670, or GEOL670.

**AOSC424 Remote Sensing of the Atmosphere and Ocean (3 Credits)**
Many of the properties of the atmosphere, ocean, and land surface are most easily observed from satellite remote sensing. This course will provide students with a hands-on introduction to a variety of passive and active sensing techniques and sensors observing our changing environment. Topics include: orbital dynamics and electromagnetic properties of the atmosphere and surface; atmospheric emission characteristics and scattering; chemical composition and spectroscopy; temperature retrievals; detection and retrieval of aerosol, cloud and rain; ocean surface properties; sea surface temperature and color; active sensing of wind stress, sea level, and internal waves; time-dependent gravity; properties of vegetation and ice.
**Prerequisite:** 1 course with a minimum grade of C- from (PHYS171, PHYS161, MATH141); or permission of instructor.

**AOSC431 Atmospheric Thermodynamics (3 Credits)**
Classical thermodynamics applied to both the dry and the moist atmosphere. Composition; phase changes of water; stability concepts; Properties of aerosols and clouds, cloud nucleation and precipitation processes, atmospheric electricity, cloud and precipitation chemistry.
**Prerequisite:** 1 course with a minimum grade of C- from (PHYS171, PHYS161, MATH141).
**Recommended:** MATH246.

**AOSC432 Dynamics of the Atmosphere and Ocean (3 Credits)**
Equations of motion and their approximation, scale analysis for the atmosphere and the ocean. Conservation properties. Fluid motion in the atmosphere and oceans. Geostrophic/balanced and ageostrphic/unbalanced motion. Circulation, vorticity, and potential vorticity. Introduction to the boundary layer.
**Prerequisite:** AOSC431.
**Corequisite:** MATH246.
**Credit Only Granted for:** AOSC432 or AOSC632.
**Formerly:** METO432.

**AOSC433 Atmospheric Chemistry and Climate (3 Credits)**
The effects of human activity on atmospheric composition, focused on global warming, the carbon cycle, air pollution, and the ozone layer. Fundamentals of atmosphereic chemistry (spectroscopy, kinetics, isotopic analysis, and biogeochemical cycles) are related to the modern understanding of climate change, air quality, and ozone depletion, based on resources such as satellite missions, field campaigns, and scientific assessments published by international agencies. We also examine how society's energy needs could be met, in the future, in a manner with less impact on atmospheric composition than the present heavy reliance on combusion of fossil fuels.
**Prerequisite:** CHEM131, CHEM135, or CHEM146. And MATH241; or permission of CMNS-Atmospheric & Oceanic Science department; or permission of CMNS-Chemistry & Biochemistry department. Cross-listed with CHEM433.
**Credit Only Granted for:** AOSC433, AOSC633, CHEM433, or CHEM633.
**Formerly:** AOSC434.

**AOSC434 Air Pollution and Environmental Justice (3 Credits)**
Basic concepts in physics and chemistry of the atmosphere as applied to air pollution and environmental justice. Production, transformation, spatial scales, transport, and removal of air pollutants. The problems of photochemical smog, the greenhouse effect & climate change, stratospheric ozone, visibility. Numerical simulation of air pollution. Health and environmental effects of air pollution in the developed and developing world; why some communities suffer disproportionately
**Prerequisite:** CHEM131 and MATH241; or permission of instructor.

**AOSC436 Principles of Biogeochemistry (3 Credits)**
An introduction to the basic principles of biogeochemistry including aspects of organic geochemistry, biochemistry, microbiology, global geochemical cycles, the origin of life and paleoenvironmental evolution.
**Prerequisite:** MATH120 or MATH140; or must have completed MATH220. And (GEOL100 or GEOL120); and GEOL322. And CHEM131 and CHEM132; or (CHEM135 and CHEM136).
**Cross-listed with:** GEOL436.
**Restriction:** Non-degree-seeking students require the permission of the instructor.
**Credit Only Granted for:** GEOL436 or AOSC436.

**AOSC437 Global Climate Change: Past and Present (3 Credits)**
Introduction to the processes by which climate varies, the paleoclimate record, and projections of climate change into the 21st century, including discussion of climate sensitivity to external radiative forcing.
**Prerequisite:** MATH115 or MATH140; and (GEOL100 or GEOL120); and (CHEM131 or CHEM135); and (CHEM132 or CHEM136).
**Cross-listed with:** GEOL437.
**Credit Only Granted for:** AOSC437 or GEOL437.

**AOSC440 Polar Remote Sensing (3 Credits)**
The harsh environment of the vast polar regions makes them some of the most inaccessible places on Earth. With widespread environmental change already underway, satellite remote sensing provides the only means by which to obtain year-round observations of the polar climate system. The objective of this course is to provide students with an overview of polar remote sensing techniques, including the physical principles of active and passive sensors, orbits, electromagnetic radiation, atmospheric transmission, calibration and validation. We will focus on measurements of the polar oceans, sea ice, glaciers, ice sheets, snow and permafrost, and examine the response of the cryosphere to climate change.
**Prerequisite:** PHYS171 or PHYS161; and AOSC401 or GEOG301; or with permission of instructor.
**Cross-listed with:** GEOG440.
**Jointly offered with:** AOSC642.
**Credit Only Granted for:** AOSC440, GEOG440, AOSC642, or GEOG640.

**AOSC447 Machine Learning in Earth Science (3 Credits)**
A comprehensive introductory course designed to prepare undergraduate and graduate students for applying machine learning techniques to solve real-world problems in Earth science. It emphasizes practical solution implementation, providing students with essential hands-on experience using the most popular open-source analytics tools based on Python, a general-purpose programming language. The course works through all steps in machine learning, from problem specification, data analytics to analytical solution, and applies advanced statistical and analytical algorithms to uncover hidden data relationships and transform them into predictive understanding or decision support. The topics covered include: Python programming, SciPy and Scikit-learn utility, data engineering, visualization, classifiers, regression models, canonical correlation analysis, structural equation models, decision trees, random forests, boosting machines, support vector machines, clustering, dimensionality reduction, principal component analysis, and neural networks.
**Prerequisite:** Must have completed MATH140.

**AOSC458 Advanced Topics in Atmospheric and Oceanic Science (1-4 Credits)**
Special topics in atmospheric and oceanic science are given intensive study. The topic of concentration varies, from semester to semester and depends on student and faculty interests. Often, specialists from other institutions are invited to the campus on a visiting lectureship basis to conduct the course.
**Repeatable to:** 12 credits.

**AOSC462 Ecohydrology (3 Credits)**
Focuses on the study of hydrologically-controlled ecosystems, e.g. systems in which either excess and/or deficit of water and nutrients are determinants of its structure and function. Such systems have complex dynamic characteristics that depend on many interrelated links between climate, soil and vegetation.
**Prerequisite:** MATH240, MATH241 and MATH246; or permission of instructor.
**Jointly offered with:** AOSC662.
**Credit Only Granted for:** AOSC462 or AOSC662.

**AOSC463 Water and Climate Systems (3 Credits)**
Focuses on exploring the relationships between water, climate, land, energy, and the economy (the so called "nexus") through an interwoven understanding of the physical, economic, and institutional relationships and constraints that influence management and decision-making process in water supply, energy generation and food production. The course emphasizes the use of integrated assessment (IA) modeling tools as a way to formalize these relationships and explore their implications. Lectures will be complemented with online discussion sessions and applied modeling exercises to get hands-on knowledge of practical solutions to nexus challenges.
**Prerequisite:** MATH240, MATH241 and MATH246; or permission of instructor.
**Jointly offered with:** AOSC663.
**Credit Only Granted for:** AOSC463 or AOSC663.
**Additional Information:** This course is offered through a joint effort of the Earth System Science Interdisciplinary Center (ESSIC, part of UMDb Sciences) and the Joint Global Change Research Institute (a collaboration between UMD and the US Dept of Energyb Northwest National Laboratory).

**AOSC470 Synoptic Meteorology (3 Credits)**
Atmospheric properties and observations, meteorological analysis and charts, operational numerical forecasts. Application of quasigeostrophic theory, baroclinic instability, midlatitiude and mesoscale weather systems. Tropical meteorology. Weather forecasting using numerical and statistical models. Prediction of weather phenomena on the global, syoptic, meso, and local scales. Analysis of surface and upper air data; Norwegian cyclone model; introduction to weather forecasting.
**Prerequisite:** Minimum grade of C- in AOSC431 and AOSC432.
**Credit Only Granted for:** AOSC470, AOSC600, or METO600.

**AOSC472 Mesoscale Meteorology (3 Credits)**
Survey a broad range of mesoscale meteorological features with emphasis on convection and associated phenomena. Define the mesoscale and understand its underlying principles; Introduce non-convective circulations and their importance for weather forecasting; Understand the precursors and occurrence of deep moist convection.
**Prerequisite:** AOSC432, AOSC600, AOSC610, or AOSC470.
**Jointly offered with:** AOSC602.
**Restriction:** Non-degree-seeking students require the permission of the instructor.
**Credit Only Granted for:** AOSC472 or AOSC602.

**AOSC475 Carbon Cycle and Climate: Past, Present, and Future (3 Credits)**
The fundamentals of the Earth's carbon cycle, a key biogeochemical cycl that controls Earth's climate and life. The changing characteristics of the carbon cycle on several timescales, ranging from geological, interannual, and the more recent anthropogenic influences on carbon cycle and climate. The carbon cycle in the atmosphere, land, ocean, and the biosphere. The underlying human activities such as fossil fuel burning and deforestation that are responsible for the increase in the atmosphere CO2 and our future options in dealing with the carbon problem such as alternative energy and carbon sequestration.
**Jointly offered with:** AOSC675.
**Credit Only Granted for:** AOSC475 or AOSC6 75.

**AOSC480 Introduction to Earth System Science (3 Credits)**
Focuses on exploring the relationships between the atmosphere, the oceans, water, climate, land, vegetation, energy, and human systems through an interwoven understanding of the physical, biogeochemical and socioeconomic relationships and constraints that influence management and decision-making processes in societal issues such as water supply, power generation, food production, ecosystem services and others. The course introduces integrated assessment (IA) science as a framework to formalize these relationships and explore their implications.
**Prerequisite:** MATH240, MATH241 and MATH246; or permission of instructor.
**Jointly offered with:** AOSC680.
**Credit Only Granted for:** AOSC480 or AOSC680.
**Additional Information:** This course is offered through a joint effort of the Department of Atmospheric and Oceanic Science (AOSC) and the Earth System Science Interdisciplinary Center (ESSIC).

**AOSC484 Climate System Modeling (3 Credits)**
Fundamentals in building computer models to simulate the components of the climate system: atmosphere, ocean ice, land-surface, terrestrial and marine ecosystems, and the biogeochemical cycles embedded in the physical climate system, in particular, the carbon cycle. Simple to state-of-the-art research models to tackle problems such as the Daisy World, El Nino and global warming.
**Jointly offered with:** AOSC684.
**Credit Only Granted for:** AOSC484 or AOSC6 84.

**AOSC493 Senior Research Project I (3 Credits)**
Technical writing and oral presentation skills. Planning, writing, and presenting a plan for research in the geosciences.
**Prerequisite:** Permission of CMNS-Atmospheric & Oceanic Science department.
**Restriction:** Must be in Atmospheric and Oceanic Science program; or permission of instructor.

**AOSC494 Atmospheric and Oceanic Science Seminar (1 Credit)**
Exposure to a wide range of contemporary topics in atmospheric, oceanic, and climate sciences, to foster research interests and promote critical thinking through the weekly AOSC departmental seminar series.
**Prerequisite:** Minimum grade of C- in AOSC431 and AOSC432.
**Restriction:** Permission of the Atmospheric and Oceanic Science Department.

**AOSC498 Senior Research Project II (3 Credits)**
The project will be based on the research or development plan created in AOSC493. It may be completed with the approval of a faculty advisor in conjunction with an internship. Final written thesis and oral defense will be expected.
**Prerequisite:** AOSC493.

**AOSC499 Special Problems in Atmospheric Science (1-3 Credits)**
Research or special study in the field of meteorology and the atmospheric and oceanic sciences.
**Prerequisite:** Permission of CMNS-Atmospheric & Oceanic Science department.
**Repeatable to:** 6 credits.

# ARAB - Arabic

**ARAB101 Elementary Arabic I (3 Credits)**
Introduction to modern standard Arabic in both its spoken and written form. Equal emphasis on all four skill areas: speaking, listening, reading, and writing.

**ARAB102 Elementary Arabic II (3 Credits)**
Continuation of ARAB101. Introduction to both spoken and written Arabic. Equal emphasis on all four skill areas: speaking, listening, reading, and writing.
**Prerequisite:** ARAB101; or must have appropriate World Language Placement Test (FLPT) score.

**ARAB104 Elementary Modern Standard Arabic I-II (6 Credits)**
An intensive course focusing on developing functional proficiency in the standard Arabic language, both written and formal spoken. Begins with script and phonology, and develops into a limited range of situation-based texts and topics that build vocabulary, grammar, general communicative competence and cultural awareness.
**Prerequisite:** Must have appropriate World Language Placement Test (FLPT) score.
**Restriction:** Must not be a fluent/native speaker of Arabic.

**ARAB105 Elementary Modern Standard Arabic III-IV (6 Credits)**
Continuation of ARAB104, developing further linguistic proficiency in Standard Arabic, both written and formal spoken. Covers an extended range of situation-based texts and topics that build vocabulary, grammar, general communicative competence and cultural awareness.
**Prerequisite:** ARAB104; or must have appropriate World Language Placement Test (FLPT) score.
**Restriction:** Must not be a fluent/native speaker of Arabic.

**ARAB169 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ARAB190 Introduction to Arab Cultures & Societies (3 Credits)**
Provides an introduction to key topics related to the study of the Arabic-speaking world, including features of Arab identity in the Middle East North Africa as well as in the diaspora. Addresses religious, racial, and ethnic diversity, the history of language and culture, political economy, and migration. Students will learn about the diverse cultures and societies that have formed the changing conceptions of the Arab world through history and across different geographies. A fundamental premise is that the "Arab world" is not a monolithic, unchanging, bounded region "over there," but has long been deeply intertwined with other societies, including our own. Taught in English.

**ARAB201 Intermediate Arabic I (3 Credits)**
The study of Arabic in both its spoken and written forms at the intermediate level. Course will continue to develop all four skills of language acquisition: listening, speaking, reading, and writing.
**Prerequisite:** ARAB102; or must have appropriate World Language Placement Test (FLPT) score.

**ARAB202 Intermediate Arabic II (3 Credits)**
Continuation of ARAB201, the study of Arabic in both its spoken and written forms at the intermediate level. Course will continue to develop all four skills of language acquisition: listening, speaking, reading, and writing.
**Prerequisite:** ARAB201; or must have appropriate World Language Placement Test (FLPT) score.

**ARAB204 Intermediate Modern Standard Arabic I (6 Credits)**
Covers topics related to contemporary Arabic society, literature and culture in standard written and formal spoken Arabic. Acquisition of more complex grammatical structures, expanding vocabulary, and reading, to develop a better understanding of the formal aspects of using MSA.
**Prerequisite:** ARAB105; and must have appropriate World Language Placement Test (FLPT) score.
**Restriction:** Must not be a fluent/native speaker of Arabic.

**ARAB205 Intermediate Modern Standard Arabic II (6 Credits)**
Continuation of ARAB204, with exposure to a wide range of Arabic texts from different domains. Focus on vocabulary, more complex grammatical forms, and a better understanding of the formal aspects of using MSA as well as the cultural aspects of using the language.
**Prerequisite:** ARAB204; or must have appropriate World Language Placement Test (FLPT) score.
**Restriction:** Must not be a fluent/native speaker of Arabic.

**ARAB206 Egyptian Colloquial Arabic I (3 Credits)**
Develops communicative skills and cultural knowledge in Egyptian Arabic. Focuses on various social interactions, work and school situations, as well as specifics of pronunciation and grammar of the Egyptian dialect. Designed for students who have completed two years of the regular Arabic sequence classes (104-105 and 204-205) or equivalent.
**Prerequisite:** ARAB205; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Must not be a fluent/native speaker of Arabic.

**ARAB207 Egyptian Colloquial Arabic II (3 Credits)**
Further develops communicative skills and cultural knowledge in Egyptian Arabic, extending range of contexts and types of social interaction. Focuses on various aspects of Egyptian popular culture.
**Prerequisite:** ARAB206; or students who have taken courses with comparable content may contact the department.
**Restriction:** Must not be a fluent/native speaker of Arabic.

**ARAB222 Arabic for Daily Life I (3 Credits)**
Develops students' speaking and listening abilities in both formal Arabic and a dialect. Focus on activating vocabulary and grammar structures, speaking at the sentence level, and selecting an appropriate register based on context.
**Prerequisite:** ARAB102; or equivalent; or must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Must not have completed ARAB202.

**ARAB225 Roots and Patterns: Verb Meaning in Arabic (3 Credits)**
Examines the templatic morphology of the Arabic verb system, and asks what the workings of such a system tell us about the way that humans construct and encode meaning. Moves beyond the traditional labels that are used to name the different categories of Arabic verb, to explore the conceptual structures that are coded linguistically by the various verb patterns.
**Prerequisite:** ARAB102; or must have appropriate World Language Placement Test (WLPT) score.
**Credit Only Granted for:** ARAB499K or ARAB225.
**Formerly:** ARAB499K.
**Additional Information:** No prior linguistic training is required, but an interest in language and linguistics is assumed.

**ARAB250 Food Cultures in the Global Middle East (3 Credits)**
Food is the stuff of everyday routine and rich symbolic meaning, from holiday meals to daily staples. Studying food offers new perspectives on modernization, colonialism, and nationalism, and illuminates popular experiences of major historical events. This course introduces students to the history and cultures of the modern Middle East and North Africa using secondary literature and primary source materials addressing the sources and methods used in humanistic food studies scholarship. Students will gain a nuanced understanding of the diversity and complexities of the region as well as a lens for analyzing its cultures and societies from an everyday human perspective.
**Credit Only Granted for:** ARAB250 or ARAB499C.
**Formerly:** ARAB499C.

**ARAB253 The Arabian Nights and the Art of Storytelling (3 Credits)**
One Thousand and One Nights (Arabic Kitab alf laylah wa laylah; English The Arabian Nights) is a collection of stories and folk tales compiled in Arabic during the Islamic Golden Age, and explores how this text has shaped Western perceptions of the Arabic-Islamic world as well as its impact on the literary production of similar works in Europe and the Middle East. Taught in English.

**ARAB269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ARAB282 The Arab-Israeli Conflict through Readings in Translation (3 Credits)**
Literary works by both Arab and Jewish authors depicting the impact of the conflict on society and individuals. In English.

**ARAB298 Special Topics in Arabic Studies (1-3 Credits)**
Language and content to be announced when course is offered.
**Repeatable to:** 9 credits if content differs.

**ARAB301 Arab Culture and Society: Skills and Topics I (3 Credits)**
Discussion of factors that drive migration from and across Arab societies, including structures of economic and social marginalization and experiences within Arab diaspora communities. Continued study of Arabic in both its spoken and written forms and study of daily life in Arabic-speaking societies. Listening, speaking, reading and writing are emphasized through engagement with increasingly advanced authentic materials.
**Prerequisite:** ARAB202; or must have appropriate World Language Placement Test (WLPT) score.

**ARAB302 Arab Culture & Society: Skills and Topics II (3 Credits)**
Discussion of cultural, ethnic, and religious diversity in the Arabic-speaking world, including social norms and practices related to religious occasions. Continued study of Arabic in both its spoken and written forms through texts that cover major social issues in the Arab world. Listening, speaking, reading and writing are emphasized through engagement with increasingly advanced authentic materials.
**Prerequisite:** ARAB301; or must have appropriate World Language Placement Test (WLPT) score.

**ARAB304 Advanced Modern Standard Arabic I (3 Credits)**
Advanced grammar, reading, writing, speaking in Arabic; study of contemporary Arabic society, politics, and culture.
**Prerequisite:** ARAB205; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Must not be a fluent/native speaker of Arabic.
**Formerly:** ARAB301.

**ARAB305 Advanced Modern Standard Arabic II (3 Credits)**
Further advanced grammar, reading, writing, speaking in Arabic; study of current issues within the Arab World.
**Prerequisite:** ARAB304; or students who have taken courses with comparable content may contact the department.
**Restriction:** Must not be a fluent/native speaker of Arabic.

**ARAB315 Intensive Advanced Arabic I (6 Credits)**
Intensive training in written and spoken Arabic at the Advanced-low level of proficiency. Additional intensive training in effective listening and reading skills. Substantial cultural component exploring traditions and customs of the Middle East in addition to current social issues.
**Prerequisite:** ARAB205; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Must not have completed ARAB304.

**ARAB316 Intensive Advanced Arabic II (6 Credits)**
Intensive training in written and spoken Arabic at the Advanced-mid level of proficiency. Additional training in effective listening and reading skills. Substantial cultural component exploring traditions and customs of the Middle East in addition to current social issues.
**Prerequisite:** ARAB304 or ARAB315; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Must not have completed ARAB305.
**Credit Only Granted for:** ARAB305 or ARAB316.

**ARAB317 Key Moments in the History of the Middle East (3 Credits)**
Provides students with an overview of major political and social events in the history of the Middle East and North Africa, with a focus on Arabic-speaking regions in the modern period. Makes use of a range of source materials and secondary readings (in Arabic and English) to illuminate how major events and changes impacted everyday life for different groups across the region. Assessments are intended to develop linguistic competence in Arabic and to guide students to become self-directed language learners and to conduct and present research on a topic of their choosing in modern Arab history.
**Prerequisite:** ARAB202 or must have appropriate World Language Placement Test (WLPT) score.
**Credit Only Granted for:** ARAB499I or ARAB317.
**Formerly:** ARAB499I.

**ARAB321 Arabic Media (3 Credits)**
Examines the role of the Arabic media in shaping public opinion and influencing relations between the Arab world and the non-Arab world. Focus on content and acquistion of Modern Standard Arabic. Taught in Arabic.
**Prerequisite:** ARAB305; or permission of instructor.

**ARAB322 Arabic for Daily Life II (3 Credits)**
Develops students' speaking and listening abilities in both formal Arabic and a dialect, aiming to bring them to the advanced low level in speaking. Focus on activating vocabulary and grammar structures, speaking at the paragraph level, self-correction, and using both formal and informal registers of Arabic.
**Prerequisite:** ARAB202; or equivalent, or must have appropriate World Language Placement Test (WLPT) score.

**ARAB325 Structure and Function of the Arabic Language (3 Credits)**
Facilitates logic-based understanding of Arabic grammar and syntax. Explores different grammatical structures and related elements, including through writing and translation.
**Prerequisite:** ARAB102; or must have appropriate World Language Placement Test (WLPT) score.
**Credit Only Granted for:** ARAB398I or ARAB325.
**Formerly:** ARAB398I.

**ARAB341 Filming War Zones: Representations of Wars in Iraq & Chechnya (3 Credits)**
Comparative study of ideological and cultural discourses in war films covering military conflicts in Iraq and Chechnya in late 20th-early 21st centuries. Materials include American, Middle Eastern, and Russian feature films and documentaries; theories of propaganda, ideology and popular culture. Taught in English.
**Cross-listed with:** CINE341.
**Credit Only Granted for:** ARAB341, CINE341 or FILM341.
**Formerly:** FILM341.

**ARAB369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ARAB386 Experiential Learning (3-6 Credits)**
Pre-professional experience in research, analysis and writing in a work setting. Project proposal approved by faculty and internship sponsor. Junior standing.
**Restriction:** Permission of ARHU-School of Languages, Literatures, and Cultures department.

**ARAB398 Special Topics in Arabic Studies (3 Credits)**
In-depth study of a particular aspect of Arabic culture, literature, and language. Specific topic to be announced when offered. Taught in Arabic.
**Prerequisite:** ARAB304.
**Repeatable to:** 6 credits if content differs.

**ARAB399 Independent Study In Arabic (1-3 Credits)**
Research and writing or specific readings on a topic selected by the student and supervised by a faculty member on the Department of Arabic Studies. To be planned during semester preceding registration.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.

**ARAB401 Readings in Arabic Literature (3 Credits)**
A survey of Modern Arabic literature is given through a range of selected texts. Texts are studied as literature with constant reference to the social, cultural and political contexts in which they were written. Taught in Arabic.
**Prerequisite:** ARAB305; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Must not be a fluent/native speaker of Arabic.

**ARAB410 Ideology of Stereotyping: American and Middle Eastern Film and Television (3 Credits)**
Exploration of cultural stereotyping, using examples from American and Middle Eastern cinema and television. Students will examine ideological constructs of Otherness and its history, including Orientalism; propaganda techniques; and audiovisual aspects of stereotyping. While the focus is on American and Middle Eastern cultural production, the course will engage broader issues of stereotyping in contemporary society and media. Readings include theories of propaganda and cultural ideology.
**Credit Only Granted for:** ARAB410, ARAB499Q, FILM429Q.
**Formerly:** ARAB499Q.

**ARAB489 Special Topics in Arabic Studies (3 Credits)**
In-depth study of particular aspect of Arabic language and culture. Specific topics to be announced when course is offered. Taught in Arabic.
**Prerequisite:** ARAB305; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**ARAB499 Special Topics in Arabic Studies (3 Credits)**
In-depth study of particular aspect of Arabic culture, literature and language. Specific topic to be announced when course is offered.
**Repeatable to:** 18 credits if content differs.

# ARCH - Architecture

**ARCH150 Discovering Architecture (3 Credits)**
Introduction to architecture and design studio education. The course examines fundamental design principles and skills related to architecture. The design studio projects apply ideas and concepts introduced in lectures, readings and on site visits. The design studio projects are both analytic and synthetic in nature. The explicit goals of the course are: To explore the discipline of architecture; To promote visual thinking and representational skills; To develop analytic design thinking skills; To learn some of the conventions of architectural representation; To enhance cultural awareness of architecture and design.
**Prerequisite:** Permission of ARCH-Architecture Program.

**ARCH170 Design Thinking and Architecture (3 Credits)**
Examines conceptual, perceptual, behavioral, and technical aspects of the built environment, and methods of analysis, problem-solving, and design implementation.

**ARCH171 Design Thinking and Making in Architecture (3 Credits)**
Examines iterative design processes and critical thinking skills through active learning and design thinking methodologies to solve problems and apply design as a lens of inquiry and exploration. Students will understand Design Thinking through interactive and experiential learning.
**Restriction:** Must be a major in ARCH-Architecture Program; and must be a freshman; or have permission of the School of Architecture, Planning and Preservation.

**ARCH200 Design Media and Representation I (3 Credits)**
Study of architectural representation in physical and digital design media. Examine visual literacy and visual communications through applied drawing, modeling and visual making to explore the role of design media and representation in design and design thinking.
**Restriction:** Must be in a major in ARCH-Architecture Program.

**ARCH201 Elements and Principles of Architecture (1 Credit)**
Survey of fundamental elements and principals of architecture and architectural education. Frames study of architecture as a profession, discipline and critical practice.
**Restriction:** Must be in a major in ARCH-Architecture Program.

**ARCH225 History of World Architecture I (3 Credits)**
Pre-1500 World Architecture survey course - History of Architecture structured to develop critical thinking and visually literacy with regard to the worldwide legacy of design thinking and cultural production through architecture

**ARCH226 History of World Architecture II (3 Credits)**
Post-1500 - History of Architecture survey course - History of Architecture structured to develop critical thinking and visually literacy with regard to the worldwide legacy of design thinking and building innovation in architecture

**ARCH270 Design in Practice (3 Credits)**
Case studies and hands-on design projects ranging in scale from a product to a building to give students insight into the process by which architects work both individually and collaboratively to put disciplinary knowledge and expertise into practice to shape our built environment.

**ARCH271 People, Planet, and Profit: Building Sustainable Places (3 Credits)**
An introduction to the four disciplines represented in the School: architecture and urban design, community planning, historic preservation, and real estate development, that work to create a more sustainable environment for the future to create a more sustainable environment for the future using our interpretation of the quadruple bottom line: socio-cultural, economic, environmental, and design sustainability. Students will be provided with an understanding of the fundamental scholarship and processes of each of these disciplines and examine the intersections between them. Additionally, they will learn by applying the approaches of the four disciplines through a series of field studies.
**Cross-listed with:** RDEV250.
**Credit Only Granted for:** ARCH271 or RDEV250.

**ARCH272 Sustainability at College Park (3 Credits)**
Explore the ways and the degrees to which University of Maryland, College Park campus master planning and operations incorporate principles of sustainability including smart growth, LEED and other building rating systems, higher education rating systems, sustainable agriculture and transportation planning. Among other subjects, students will learn about the Campus and the City of College Park and survey the relationship between local, national and global sustainability concerns. Students will learn about the University's Climate Action Plan and the roles, and extent to which, the UMD Office of Sustainability and other campus units are helping develop a carbon-neutral and resource-efficient campus infrastructure.

**ARCH289 Independent Studies in Architectural Sustainability (1-4 Credits)**
Independent Studies in Architectural Sustainability. Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.
**Restriction:** Must be in a major in ARCH-Architecture Program; and permission of ARCH-Architecture Program.
**Repeatable to:** 6 credits if content differs.

**ARCH300 Design Media and Representation II (3 Credits)**
Study of architectural representation in physical and digital design media. Examine visual communications and speculative visual studies through applied drawing, modeling and making to explore expanded roles of representation in design and design thinking.
**Prerequisite:** ARCH200; or permission of ARCH-Architecture Program.
**Restriction:** Must be in a major in ARCH-Architecture Program.

**ARCH386 Experiential Learning (1-6 Credits)**
Learning experience tied to internship of specified duration with targeted learning outcomes.
**Restriction:** Must have learning proposal approved by faculty sponsor and student's internship sponsor; and sophomore standing or higher; and permission of ARCH-Architecture Program.

**ARCH400 Architecture Design Studio I (6 Credits)**
Introduction to architectural design with particular emphasis on conventions and principles of architecture, visual and verbal communication skills, formal analysis, design process, spatial composition, architectural promenade, basic program distribution, and elementary constructional and environmental responses.
**Restriction:** Must be in a major in ARCH-Architecture Program; and permission of ARCH-Architecture Program.

**ARCH401 Architecture Design Studio II (6 Credits)**
Continuation of ARCH 400 with introduction to building typology, urban and contextual issues, design of the vertical surface, and architectural interiors.
**Prerequisite:** Minimum grade of C- in ARCH400.
**Restriction:** Must be in Architecture (B.S.) program.

**ARCH402 Architecture Design Studio III (6 Credits)**
Architectural design studio with emphasis on building and facade typologies, the development of architectural promenade and sequence, public and/or civic infill buildings dependent upon the architectural promenade, and urban housing types of varying densities. The architect's obligations to urban context are explored in many dimensions including historical, typological, and physical.
**Prerequisite:** Minimum grade of C- in ARCH401.
**Restriction:** Must be in Architecture (B.S.) program.

**ARCH403 Architecture Design Studio IV (6 Credits)**
Investigations into the relationship between the man-made and the natural world including introductory issues of assembly and material value. Design of the site and the building are combined into an integral process delimiting and probing the boundaries of each and exploring their reciprocal relationship. The architect's obligations to the natural and urban contexts are explored in many dimensions including historical, typological, environmental, and physical.
**Prerequisite:** Minimum grade of C- in ARCH402.
**Restriction:** Must be in Architecture (B.S.) program.

**ARCH404 Graduate Architecture Design Studio I (6 Credits)**
Introduction to architectural design with particular emphasis on conventions and principles of architecture , visual and verbal communication skills, formal analysis, design process, spatial composition, architectural promenade, basic program distribution, and elementary constructional and environmental responses. Offered fall only.
**Recommended:** For 3 1/2 year graduate students only.
**Restriction:** Must be in Architecture (Master's) program.

**ARCH405 Graduate Architecture Design Studio II (6 Credits)**
Architectural design studio with emphasis on building and facade typologies, the development of architectural promenade and sequence, public and/or civic infill buildings dependent upon the architectural promenade, and urban housing types of varying densities. The architect's obligations to urban context are explored in many dimensions including historical, typological, and physical. Offered spring only.
**Prerequisite:** Minimum grade of C- in ARCH404.
**Restriction:** Must be in Architecture (Master's) program.

**ARCH406 Graduate Architecture Design Studio III (6 Credits)**
Investigations into the relationship between the man-made and the natural world including introductory issues of assembly and material value. Design of the site and the building are combined into an integral process delimiting and probing the boundaries of each and exploring their reciprocal relationship. The architect's obligations to the natural and urban contexts are explored in many dimensions including historical, typological, environmental, and physical.
**Prerequisite:** Minimum grade of C- in ARCH405.
**Restriction:** Must be in Architecture (Master's) program.

**ARCH407 Graduate Architecture Design IV (6 Credits)**
Studio problems and theories concentrating on urbanism and urban design techniques. Issues and sites range from high-density urban in-fill to suburban and greenfield development in American and other contexts. Studio theories explore such topics as Contextualism, Neo-Traditional design, Transit Oriented Development, density, sustainable development, building typology, and street design.
**Prerequisite:** Minimum grade of C- in ARCH406.
**Restriction:** Must be in Architecture (Master's) program.

**ARCH408 Special Topics Architecture Design Studio (6 Credits)**
Design Studio course to examine topical problems in architecture and urban design.
**Restriction:** Must be in a major in ARCH-Architecture Program; and permission of ARCH-Architecture Program.
**Repeatable to:** 12 credits if content differs.
**Additional Information:** May also be taken for repeat credit for ARCH400, ARCH401, ARCH402, or ARCH403 only by permission of Architecture Program Director.

**ARCH418 Selected Topics in Architectural Technology (3 Credits)**
Selected Topics in Architectural Technology
**Restriction:** Permission of ARCH-Architecture Program.
**Repeatable to:** 6 credits if content differs.

**ARCH419 Independent Studies in Architectural Technology (1-4 Credits)**
Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.
**Restriction:** Permission of ARCH-Architecture Program.
**Repeatable to:** 6 credits if content differs.

**ARCH420 History of American Architecture (3 Credits)**
American architecture from the late 17th to the 21st century.
**Prerequisite:** ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture program.

**ARCH423 History of Roman Architecture (3 Credits)**
Survey of Roman architecture from 500 B.C. To A.D. 325.
**Prerequisite:** ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture Program.

**ARCH425 History of Architecture I (3 Credits)**
Pre-1500 World Architecture survey course - History of Architecture structured to develop critical thinking and visually literacy with regard to the worldwide legacy of design thinking and cultural production through architecture. Structured to nurture critical thinking and visually literacy with regard to the worldwide legacy of architecture. The work in the course will involve the evaluation of sources and arguments in reading architectural history. Architecture will be framed relative to ways of thinking, religious beliefs, cultural heritage, and cultural values.
**Restriction:** Permission of ARCH-Architecture Program.
**Credit Only Granted for:** ARCH225 or ARCH425.
**Additional Information:** Graduate architecture history course requires additional recitation section and additional coursework tied to survey lectures.

**ARCH426 History of Architecture II (3 Credits)**
Post-1500 - History of Architecture survey course - History of Architecture structured to develop critical thinking and visually literacy with regard to the worldwide legacy of design thinking and building innovation in architecture. Structured to nurture critical thinking and visually literacy with regard to the worldwide legacy of architecture. The work in the course will involve the evaluation of sources and arguments in reading architectural history. Architecture will be framed relative to ways of thinking, religious beliefs, cultural heritage, and cultural values.
**Restriction:** Permission of ARCH-Architecture Program.
**Credit Only Granted for:** ARCH226 or ARCH426.
**Additional Information:** Graduate architecture history course requires additional recitation section and additional coursework tied to survey lectures.

**ARCH427 Theories of Architecture (3 Credits)**
Survey of architectural theories - theories of architectural design, representation and urban design from antiquity to the present day.
**Prerequisite:** ARCH426; or permission of ARCH-Architecture Program.
**Restriction:** Must be in Architecture (B.S.) program.

**ARCH428 Selected Topics in Architectural History (1-4 Credits)**
Selected Topics in Architectural History
**Prerequisite:** ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture Program.
**Restriction:** Permission of ARCH-Architecture Program.
**Repeatable to:** 6 credits if content differs.

**ARCH429 Independent Studies in Architectural History (1-4 Credits)**
Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.
**Prerequisite:** ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture Program.
**Restriction:** Permission of ARCH-Architecture Program.
**Repeatable to:** 6 credits if content differs.

**ARCH430 Measuring Sustainability in Architecture (3 Credits)**
Studies metrics of sustainability as included in rating standards, including LEED. All students will take the LEED GA test.
**Credit Only Granted for:** ARCH430 or ARCH418M.
**Formerly:** ARCH418M.

**ARCH435 History of Contemporary Architecture (3 Credits)**
Architectural history from World War II to the present.
**Prerequisite:** ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture Program.

**ARCH443 Visual Communication For Architects (3 Credits)**
Investigation of the relationship between drawing from life and architectural drawing, the conventions of architectural drawing and the role of architectural drawing as a means to develop, communicate, and generate architectural ideas.
**Corequisite:** ARCH400.
**Restriction:** Must be in Architecture (Master's) program; and must be in the 3.5 year M. ARCH program.

**ARCH445 Visual Analysis of Architecture (3 Credits)**
Study of visual principles of architectural and urban precedents through graphic analysis. Exercises include on-site observation, documentation and analysis. Focuses on the development of an architect's sketchbook as a tool for life-long learning.
**Prerequisite:** ARCH400; or permission of ARCH-Architecture Program.
**Restriction:** Must be in Architecture (B.S.) program.

**ARCH448 Selected Topics in Visual Studies in Architecture (3 Credits)**
Selected Topics in Visual Studies in Architecture
**Restriction:** Permission of ARCH-Architecture Program; and must be in a major in ARCH-Architecture Program.
**Repeatable to:** 6 credits if content differs.

**ARCH449 Independent Studies in Visual Studies in Architecture (1-4 Credits)**
Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.
**Restriction:** Permission of ARCH-Architecture Program; and must be in a major in ARCH-Architecture Program.
**Repeatable to:** 6 credits if content differs.

**ARCH456 Great Cities (3 Credits)**
Case studies from a selection of the great cities of the world.
**Prerequisite:** Permission of ARCH-Architecture Program.

**ARCH458 Selected Topics in Urban Design (3 Credits)**
Selected Topics in Urban Design
**Restriction:** Must be in a major in ARCH-Architecture Program; and permission of ARCH-Architecture Program.
**Repeatable to:** 6 credits if content differs.

**ARCH459 Independent Studies in Urban Design (1-4 Credits)**
Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.
**Restriction:** Must be in a major in ARCH-Architecture Program; and permission of ARCH-Architecture Program.
**Repeatable to:** 6 credits if content differs.

**ARCH460 Site Analysis and Design (3 Credits)**
Principles and methods of site analysis; the influence of natural and man-made site factors on site design and architectural form.
**Restriction:** Must be in the Master of Architecture program; or permission of the School of Architecture, Planning and Preservation.

**ARCH461 Sustainability in Architecture (3 Credits)**
Strategies of sustainability as related to the broader context of architectural problem solving.
**Restriction:** Permission of ARCH-Architecture Program.
**Credit Only Granted for:** ARCH418S or ARCH461.
**Formerly:** ARCH418S.

**ARCH462 Methods & Materials of Building Construction (3 Credits)**
Building Construction methods and materials are examined through case studies to explore the means and techniques applied to the material execution of buildings and BIM. Focus on an understanding of the organization of the design and construction process and awareness of building and zoning codes, material systems and types.
**Prerequisite:** PHYS121 or equivalent; and MATH120 or MATH140 or equivalent; or permission of the ARCH-Architecture Program.
**Restriction:** Must be in a major in undergraduate or graduate ARCH program or Construction Project Management Minor.
**Credit Only Granted for:** ARCH410 or ARCH462.

**ARCH463 Sustainable Systems in Architecture (3 Credits)**
Sustainable systems in architecture examines the nature of the global problem, environmental economics, understanding the local environment, bioclimatic design, solar control and shading, solar access zoning, residential scale energy design issues, commercial scale energy design issues, and urban scale energy design issues.
**Prerequisite:** ARCH462.
**Restriction:** Must be in a major in undergraduate or graduate ARCH program.

**ARCH464 Architectural Structures I (3 Credits)**
This course covers the basic principles of architectural structures, including the influence of geometric, sectional, and material properties related to flexure and shear in beam and framed systems; vector mechanics with application to analysis of trusses, catenaries, and arches; diagrammatic analysis of beams for bending moment, shear, and deflection as well as the study of structural framing systems for vertical and lateral loads.
**Prerequisite:** ARCH462, ARCH463, and PHYS121; and MATH120 or MATH140, or equivalent; or permission of the ARCH-Architecture Program.
**Corequisite:** ARCH401 or ARCH406.
**Restriction:** Must be in either BS in Architecture or M.Architecture Program.
**Credit Only Granted for:** ARCH411 or ARCH464.

**ARCH465 Architectural Structures II (3 Credits)**
The basic principles of elastic behavior for different materials such as wood, steel, concrete, and composite materials and compares the properties and applications of materials generally will be covered. It investigates cross sectional stress and strain behavior in flexure and in shear, and torsion as well as the stability of beams and columns. The qualitative behavior of combined stresses and fracture in materials is also covered.
**Prerequisite:** ARCH464 and PHYS121; and MATH120 or MATH140, or equivalent; or permission of the ARCH-Architecture Program.
**Restriction:** Must be in either BS in Architecture or M. Architecture Program.
**Credit Only Granted for:** ARCH412 or ARCH465.

**ARCH466 Environmental Systems in Architecture (3 Credits)**
Environmental systems in architecture presents the theory, quantification, and architectural design implications for heating ventilating and air conditioning, water and waste, fire protection, electricity, illumination, acoustics, and vertical transportation.
**Prerequisite:** ARCH462 and ARCH463.
**Corequisite:** ARCH403 or ARCH406.
**Restriction:** Must be in either BS in Architecture or M. Architecture Program.
**Credit Only Granted for:** ARCH413 or ARCH466.

**ARCH467 Integrated Project Delivery (3 Credits)**
Integrated Project Delivery is examined from design to implementation through an exploration of building construction, architectural design and construction management perspectives.
**Restriction:** Must be in a major in ARCH-Architecture Program; or must be in Construction Project Management Minor.

**ARCH468 Selected Topics in Architecture (1-4 Credits)**
Selected Topics in Architecture
**Restriction:** Permission of ARCH-Architecture Program.
**Repeatable to:** 6 credits if content differs.

**ARCH470 Computer Applications in Architecture (3 Credits)**
Introduction to computer utilization, with emphasis on architectural applications.
**Prerequisite:** ARCH400; or permission of ARCH-Architecture Program.

**ARCH472 Building Information Modeling Communication and Collaboration (3 Credits)**
Building Information Modeling is explored as pertains to collaboration and communication in the design and construction of buildings and building systems. Practical and empirical learning using BIM software and case studies of real world projects and construction scenarios.
**Restriction:** Must be in a major in ARCH-Architecture Program; or must be in the Construction Project Management Minor.
**Credit Only Granted for:** ARCH678I or ARCH472.
**Formerly:** ARCH678I.

**ARCH478 Selected Topics in Architecture (1-4 Credits)**
Selected Topics in Architecture
**Restriction:** Permission of ARCH-Architecture Program.
**Repeatable to:** 6 credits if content differs.

**ARCH479 Independent Studies in Architecture (1-4 Credits)**
Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.
**Restriction:** Permission of ARCH-Architecture Program.
**Repeatable to:** 6 credits if content differs.

**ARCH481 The Architect in Archaeology (3 Credits)**
The role of the architect in field archaeology and the analysis of excavating, recording, and publishing selected archaeological expeditions.
**Prerequisite:** ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture Program.

**ARCH482 The Archaeology of Roman and Byzantine Palestine (3 Credits)**
Archaeological sites in Palestine (Israel and Jordan) from the reign of Herod the Great to the Moslem conquest.
**Prerequisite:** ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture Program.

**ARCH483 Field Archaeology (3 Credits)**
Participation in field archaeology with an excavation officially recognized by proper authorities of local government.
**Prerequisite:** ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture Program.

**ARCH488 Selected Topics in Architectural Preservation (1-4 Credits)**
Selected Topics in Architectural Preservation.
**Restriction:** Permission of ARCH-Architecture Program.
**Repeatable to:** 6 credits if content differs.

**ARCH489 Independent Studies in Architectural Preservation (1-4 Credits)**
Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.
**Restriction:** Permission of ARCH-Architecture Program.
**Repeatable to:** 6 credits if content differs.

# AREC - Agricultural and Resource Economics

**AREC200 The Chesapeake Bay Ecosystem: Intersection of Science, Economics, and Policy (3 Credits)**
The Chesapeake Bay is one of the most studied and monitored ecosystems in the world. To develop effective policies to restore this system to a healthier status requires integrating what we know about the biological and physical properties of the system with our understanding of the human dimension. Issues such as achieving nutrient reduction goals, restoring healthy blue crab and oyster fisheries in the bay will be used to demonstrate how economics interacts with science to guide policies that can be effective in achieving Bay restoration goals.

**AREC210 The Food Chain: What Happens As Your Food Goes From Farm to Table (3 Credits)**
How can we feed a growing global population, reduce farming's environmental damage, and provide a healthier diet, all in the face of climate change? The course explores these global food system challenges in the context of the food supply chains that link farms, input providers, traders, food processors, retailers, consumers, and governments. We assess how supply chains are organized; how they use technologies; and how they can create organizations, develop new technologies, and adapt food production practices to meet these four major challenges facing the global food system.

**AREC240 Introduction to Economics and the Environment (4 Credits)**
Costs and social impacts of pollution and human crowding in the modern environment. The economic, legal and institutional causes of these problems. Public policy approaches to solutions and the costs and benefits of alternative solutions.
**Credit Only Granted for:** ECON200, AREC240, or AREC250 .

**AREC241 Environment, Economics and Policy (4 Credits)**
How can economics help us understand modern environmental problems and design better policies to solve them? This course studies the relationship between the economy, environment and policy. The importance of production, consumption, externalities, property rights and public goods in environmental issues is examined. Technological and incentive-based solutions are considered. Students will apply these concepts to evaluate current controversial environmental problems.
**Credit Only Granted for:** AREC240 or AREC241.

**AREC250 Elements of Agricultural and Resource Economics (3 Credits)**
An introduction to economic principles of production, marketing, agricultural prices and incomes, farm labor, credit, agricultural policies, and government programs.
**Credit Only Granted for:** ECON200, AREC240 or AREC250.

**AREC260 The Science of Gender in Economics and Development (3 Credits)**
Is science an objective enterprise that qualifies researchers to investigate gender free from the constraints and prejudice of their culture? We will investigate the process by which various scientific disciplines, including anthropology, evolutionary biology, psychology, and economics do research on the topic of gender. We will describe the current state of the literature on why different sexes exist and how sex translates into gender across different societies today. With a better understanding of the sources of sex and gender, we will examine how to research the reasons behind the highly divergent economic outcomes for men and women today. We will discuss these issues in the context of the labor market in developed countries like the US as well as a variety of contexts in developing countri es. A particular focus will be the techniques for learning more about the underlying reasons for these differences, how and whether they can be overcome, and if women play a specific role in improving economic outcomes in the poorest parts of the world.
**Recommended:** Completion of introductory statistics recommended but not required.

**AREC280 Harvesting Big Data to Examine Agriculture and Climate Change (3 Credits)**
Can agricultural production keep up with climate change? The digital revolution has changed the way we analyze and interpret the world. Big data offers both opportunities and challenges that require new tools and methods of analysis. This course applies sophisticated digital tools to an age-old concern: the impact of climate on agricultural productivity. In this hands-on introduction to data analysis and visualization with real-world data, students acquire the tools to understand the impacts of environmental change and more.
**Credit Only Granted for:** HNUH258A or AREC280.
**Formerly:** HNUH258A.

**AREC306 Farm Management and Sustainable Food Production (3 Credits)**
The organization and operation of farm businesses are explored through principles of management, financial analysis, production economics, marketing, and business planning. These farm management principles are presented in the context of a sustainable food production system.

**AREC326 Intermediate Applied Microeconomics (3 Credits)**
Deepens and broadens your ability to apply rigorous economic analysis skills to a broad range of problems.
**Prerequisite:** ECON200, AREC250, or AREC240; and ECON201. And MATH120, MATH130, MATH136, or MATH140; or must have completed MATH220.
**Credit Only Granted for:** ECON306, ECON326, AREC489M, or AREC326.
**Formerly:** AREC489M.

**AREC345 Global Poverty and Economic Development (3 Credits)**
This interdisciplinary course explores social and economic development around the world. Topics include geography, democratization, political instability and conflict, health and education, agricultural development, micro-entrepreneurship, and an introduction to impact evaluation methods used to evaluate the efficacy of public policy aimed at alleviating poverty.

**AREC357 Germany: Energy Transition, Climate Change, and Sustainability (3 Credits)**
Interdisciplinary examination of Germany as a leading model in dealing with contemporary issues of sustainability as well as the economic, social, and political impacts of climate change in a global world. Students will learn the basics of climate change, examine policy tools (e.g. carbon taxes, regulations, incentives, etc.) and technological innovations to curb the causes of climate change and promote sustainable practices. Students will also learn how cultural values and traditions inform policy making by examining the history of the environmental movement in German cultural artifacts (e.g., art, literature, grass-roots social movements, etc.). Designed to appeal to students with a variety of backgrounds (technical, policy and government, and humanities), the course blends site visits (e.g. coal mines, government offices, technical universities, artist studios, grass-roots collectives, museums, parks, etc.) with academic lectures by experts in pertinent fields and faculty-led discussion groups. Students will receive an overarching and holistic overview of the economic, political, and cultural costs of climate change as well as current efforts to offset the negative impacts through greater sustainability. Taught in English.
**Cross-listed with:** GERS457.
**Credit Only Granted for:** AREC357 or GERS457.

**AREC360 Global Agriculture: Developing Extension Education & Agriculture Technologies in Africa (3 Credits)**
Identifies challenges faced by farmers in Nimba County, Liberia, and works collaboratively across borders to discuss these challenges and develop extension education programming that will be implemented in the region in order to empower local farmers. The course is designed to create a paradigm shift for both cohorts of students who will educate and learn from each other in what is now becoming a critical context - the globalized workspace. UMD and LICC students will be grouped together to identify and develop particular thematic areas most needed by local farmers, and then as a cohort create a week-long extension program to be implemented on the ground.

**AREC365 World Hunger, Population, and Food Supplies (3 Credits)**
An introduction to the problem of world hunger and possible solutions to it. World demand, supply, and distribution of food. Alternatives for leveling off world food demand, increasing the supply of food, and improving its distribution. Environmental limitations to increasing world food production.

**AREC380 Data Science for Environmental and Resource Economics (3 Credits)**
An introduction to principles of data science using modern, open source software tools with applications to important problems in environmental, energy and resource economics. Topics include data wrangling, exploratory data analysis and visualization, modeling, forecasting, practices for reproducible research, and communication of results.
**Prerequisite:** AREC240, AREC241, AREC250, or ECON200.

**AREC386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Permission of AGNR-Agricultural & Resource Economics department.
**Restriction:** Junior standing or higher.

**AREC388 Honors Thesis Research (3-6 Credits)**
Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.
**Restriction:** Must be in the AGNR Honors program.
**Repeatable to:** 6 credits if content differs.

**AREC399 Special Problems (1-3 Credits)**
Concentrated reading and study in some phase of a problem in agricultural and/or natural resource economics.
**Repeatable to:** 6 credits if content differs.

**AREC405 Economics of Production (3 Credits)**
The use and application of production economics in analysis of firm and policy decisions. Production functions, cost functions, multiple product and joint production, and production processes through time.
**Prerequisite:** ECON326 or AREC326; or students who have taken courses with comparable content may contact the department.

**AREC422 Econometric Analysis in Agricultural and Environmental Economics (3 Credits)**
This course offers a hands-on introduction to econometrics. Students will explore the linear regression model from the ground up by analyzing real-world datasets and learning how to distinguish causation from correlation. They will gain practical experience using econometrics to address important questions in agricultural economics and environmental economics.
**Prerequisite:** 1 course from (AREC326 or ECON326); and 1 course from (ECON230, ECON321, or BMGT230).
**Credit Only Granted for:** ECON422, ECON424, or AREC422.

**AREC426 Economic Methods and Food Consumption Policy (3 Credits)**
An overview of major econometric tools used by policy makers, economists and social scientists to analyze the effects of food consumption policy. Major food assistance programs in the United States such as SNAP, the School Lunch Program and the School Breakfast Program will be discussed.
**Prerequisite:** AREC326; or ECON326.
**Credit Only Granted for:** AREC489O or AREC426.
**Formerly:** AREC489O.

**AREC427 Commodity Pricing and Markets (3 Credits)**
Economic theory as applied to the marketing of agricultural commodities. How commodity prices vary with current demand and production, and how prices are linked over time, across space, and across grades.
The role played by contractual arrangements, cooperative marketing, vertical integration, and governmental policies in commodity marketing strategies.
**Prerequisite:** ECON326 or AREC326; or students who have taken courses with comparable content may contact the department.

**AREC430 Introduction to Agricultural and Resource Law (3 Credits)**
Survey of law with emphasis on problems and applications related to agricultural and natural resource economics. The course emphasizes strategies for managing legal risk arising from ownership, management, and use of agricultural resources. Students will get practical information to utilize in personal or professional settings. Contract law, constitutional law, tort law, property law, real estate transactions, business organization, estate planning, and debtor.
**Prerequisite:** ECON326 or AREC326.
**Credit Only Granted for:** AREC430 or AREC489K.
**Formerly:** AREC489K.

**AREC431 Agricultural Water Quality: Policy and Legal Issues (3 Credits)**
An overview of the American and Maryland legal systems and sources of legal information as it pertains to water quality and agriculture.
**Prerequisite:** AREC326; or ECON326; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** AREC489L or AREC431.
**Formerly:** AREC489L.

**AREC433 Food and Agricultural Policy (3 Credits)**
Economic and political context of governmental involvement in the farm and food sector. Historical programs and current policy issues. Analysis of economic effects of agricultural programs, their benefits and costs, and comparison of policy alternatives. Analyzes the interrelationship among international development, agricultural trade and general economic and domestic agricultural policies.
**Prerequisite:** ECON326 or AREC326; or students who have taken courses with comparable content may contact the department.

**AREC435 Commodity Futures and Options (3 Credits)**
The economics and institutional features of commodity futures and options markets. Students will develop a basic understanding of the underlying price relationships between cash and futures markets and will apply this information to business risk management decision making.
**Prerequisite:** AREC326; or ECON326; or students who have taken courses with comparable content may contact the department.

**AREC445 Agricultural Development, Population Growth and the Environment (3 Credits)**
Development theories, the role of agriculture in economic development, the agricultural policy environment, policies impacting on rural income and equity, environmental impacts of agricultural development.
**Prerequisite:** ECON326 or AREC326; or students who have taken courses with comparable content may contact the department.

**AREC446 Sustainable Economic Development (3 Credits)**
Examine why socially equitable and environmentally sustainable economic growth is difficult to achieve. It explores the interactive dynamics of environmental degradation, human capital, inequality and institutions. Emphasis is on the role of market imperfections and political failure in explaining the persistence of extractive economic institutions that hinder sustainable development.
**Prerequisite:** AREC326; or ECON326; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** AREC446 or AREC489G.
**Formerly:** AREC489G.

**AREC447 The Economy of China (3 Credits)**
An introductory survey course of economic development in China with emphasis on understanding the process of economic reform in mainland China since 1978.
**Prerequisite:** AREC326, ECON306, or ECON326.

**AREC453 Natural Resources and Public Policy (3 Credits)**
Rational use and reuse of natural resources. Theory, methodology, and policies concerned with the allocation of natural resources among alternative uses. Optimum state of conservation, market failure, safe minimum standard, and cost-benefit analysis.
**Prerequisite:** AREC326, ECON306, or ECON326; and (BMGT230 or ECON230).
**Cross-listed with:** ECON453.
**Restriction:** Must be in one of the following programs (Agricultural and Resource Economics; Agricultural and Resource Economics: Agribusiness; Agricultural and Resource Economics: Environmental and Resource Economics; Economics Bachelor of Arts; Environmental Science & Policy-Env Economics).
**Credit Only Granted for:** AREC453 or ECON453.

**AREC454 The Economics of Climate Change (3 Credits)**
The role of economics in the formation of climate policy; basic concepts of environmental economics including efficiency, externalities, and policy instruments; economic models of intertemporal decisions and decision making in the face of uncertainty. Applied economic analysis of specific issues and current policy initiatives.
**Prerequisite:** 1 course with a minimum grade of C- from (AREC326, ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, ECON321, BMGT230).
**Cross-listed with:** ECON484.
**Credit Only Granted for:** AREC454 or ECON484.

**AREC455 Economics of Land Use (3 Credits)**
Fundamentals of location theory. Microeconomics of land use decisions, including determination of rent and hedonic pricing models. Impacts of government decisions on land use, including regulation (e.g., zoning), incentives (transferable development rights), provision of public services, and infrastructure investments. Impacts of land use on environmental quality, including issues relating to sprawl, agricultural land preservation, and other topics of special interest.
**Prerequisite:** 1 course with a minimum grade of C- from (AREC326, ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, ECON321, BMGT230).
**Cross-listed with:** ECON485.
**Credit Only Granted for:** AREC455 or ECON485.

**AREC456 Energy and Environmental Economics (3 Credits)**
Economic theory and empirical methods are used to study problems of energy, the environment, and the economy. It examines the extraction, production, and use of energy and market institutions and regulatory approaches used to correct market failures. Topics covered include: oil and natural gas markets, management and design of electricity markets, renewable energy, non-market valuation , climate change, and transportation policies.
**Prerequisite:** 1 course with a minimum grade of C- from (AREC326, ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, ECON321, BMGT230).
**Cross-listed with:** ECON486.
**Credit Only Granted for:** AREC456 or ECON486.

**AREC457 Energy, Climate Change, and Options for a Low-Carbon Economy (3 Credits)**
Provides a primer in the physics and atmospheric chemistry of climate change, describes what the effects of climate change may be and explains how energy generation and use in various sectors of the economy contribute to greenhouse gas. It presents policy options meant to curb the use of fossil fuels (e.g., carbon taxes), improve energy efficiency (e.g., standards and incentives), and identifies possible drawbacks or unintended effects of such policies. Students will also study adaptation from the engineering, policy and anthropology points of view. The course further covers other aspects of climate change, as the potential effect of climate change on human health, cultural artifacts and the built environment, and sensitive ecological systems, and the legal implications of carbon storage options.
**Recommended:** ECON200. And AREC326; or ECON326.
**Restriction:** Junior standing or higher.

**AREC466 Transportation Engineering, Economics, and Policy (3 Credits)**
The transportation system moves people and goods around the world, but transportation has downsides: harming local air quality, contributing to climate change, causing traffic accidents, and wasting people's time on congested roads. Mitigating these downsides will require new policies, new technologies, and new decisions by households and businesses. Focusing on the US transportation system, students will apply an integrated economics, policy, and engineering perspective to analyze transportation's most pressing challenges. Students are expected to have some background in one of the three disciplines--economics, engineering, or policy--but not all three. The beginning of the semester will include tutorials for students without much economics or engineering background.
**Prerequisite:** BMGT230, ECON230, ECON321, ENCE302, or PLCY304; or permission of the instructors.
**Recommended:** AREC326, ECON306 or ECON326.
**Credit Only Granted for:** AREC466 or ENCE489T.

**AREC481 Environmental Economics (3 Credits)**
An exploration of the use of economic incentives for protection of the environment and the determination of appropriate (or efficient) level of environmental quality. Also covers the choice of policy instruments for the attainment of environmental standards.
**Prerequisite:** 1 course with a minimum grade of C- from (AREC326, ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, ECON321, BMGT230).
**Cross-listed with:** ECON481.
**Restriction:** Must be in one of the following programs (Agricultural and Resource Economics; Agricultural and Resource Economics: Agribusiness; Environmental Science & Policy-Env Economics; Agricultural and Resource Economics: Environmental and Resource Economics; Economics Bachelor of Arts program).
**Credit Only Granted for:** ECON481 or AREC481.

**AREC489 Special Topics in Agricultural and Resources Economics (3 Credits)**
**Repeatable to:** 9 credits.

# ARHU - Arts and Humanities

**ARHU158 Explorations in Arts and Humanities (3 Credits)**
A first-year innovation and research experience. It introduces multiple disciplinary perspectives within a given theme to understand human beings, cultures and societies. Students will learn about key questions, concepts, methods, and practices within ARHU and will engage in original humanistic research while working with campus and college tools and resources.
**Restriction:** Must be in a major in ARHU-College of Arts & Humanities; and freshman standing.

**ARHU230 Introduction to Humanities, Health, and Medicine (3 Credits)**
An overview of the historical, cultural, ethical, and spiritual dimensions of medicine, human health, disease, and death from the points of view of various humanistic disciplines.
**Cross-listed with:** ENGL254, HIST219N, WGSS230.
**Restriction:** Permission of ARHU-English Department.
**Credit Only Granted for:** ARHU230 , ENGL289C, ENGL254, ARHU298A, HIST219N, or WGSS230.

**ARHU240 Cultural Institutions of the United States (3 Credits)**
An introduction to cultural institutions in the United States, while providing student exposure to the professional environment artist find themselves in. In order for artist and arts administrators to succeed after their educational experience it is critical to understand the history of their respective field, and which events and questions have shaped, and are shaping, their industry. This course is very much an interdisciplinary initiative. Over the past century the arts have become ever-more integrated with one another resulting in a requirement of not only understanding one discipline, but how other disciplines affect a particular practice.

**ARHU269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ARHU269A Morocco: In the Footsteps of the Beat Generation (3 Credits)**
Educates students about the history, culture and socio-political situation in Morocco through the reading of fiction related to this country. The focus will be on the intersection of American and Moroccan culture and will cover film, music and literature. The American perception of the "orient" has historically been channeled through the French characterization of Arab societies in North Africa. This course aims to disentangle this western mythology from reality in Morocco. Some of the themes addressed will be globalization, colonialism, racism, orientalism, and women's oppression
**Cross-listed with:** ENGL269M.
**Credit Only Granted for:** ARHU269A or ENGL269M.

**ARHU275 Scriptwriting for Theater, Film, and Television (3 Credits)**
Introduction to the theory and practice of scriptwriting with an opportunity to read, view, evaluate, write, and revise texts meant to be performed. Students will practice writing for the stage, film, and television and also examine selected scripts, performances, and film and television clips as models for their own creative work. Students will complete frequent writing exercises, participate in workshops, and learn to apply scholarship to the analysis and critique of scripts.
**Cross-listed with:** ENGL275.
**Credit Only Granted for:** ENGL275 or ARHU275.

**ARHU286 Experiential Learning (3-6 Credits)**
Designed for students who are in their first semester at the University of Maryland and/or students who wish to complete legislative internships, some start-up internships and some remote internships. All students must be enrolled in an ARHU major or minor and the internship must be in one of the academic fields covered within the College of Arts and Humanities. In addition to completing their required hours on site, students will be required to attend three bi-weekly seminars at the beginning of the semester to help develop their para-professional goals and understandings.
**Prerequisite:** Permission of ARHU-College of Arts & Humanities.
**Restriction:** Minimum cumulative GPA of 2.5; and must be in a major or minor in ARHU - College of Arts and Humanities.

**ARHU298 Special Problems in Arts and Humanities (3 Credits)**
**Repeatable to:** 6 credits if content differs.

**ARHU298L "Are you - Nobody - too?" Why we create and share stories, poems, comics and zines (3 Credits)**
Our ability to create and maintain meaningful social connections tells us that we are not alone; it reminds us that we are connected to something larger, a community, a group of people willing to celebrate our triumphs and help us cope during difficult times. Emphasizing the principles of participation, connection, and collaboration, this course explores how various traditionally marginalized people form their own cultural communities and develop a sense of reciprocal belonging through the creation (and independent distribution) of stories, poems, spoken word poetry, comics and zines.In spite of intersectional obstacles such as the lack of political power, access to resources and economic opportunities, these communities may find it possible to redefine their place in society by demonstrating originality, resilience, and talent.

**ARHU299 Studies in Humanities Technology (1-3 Credits)**
Selected topics in the use of Information Technology in the Humanities.
**Prerequisite:** Permission of instructor.
**Repeatable to:** 6 credits if content differs.

**ARHU300 Writers' House Colloquium: Welcome to Writers' House; Writing Your Manifesto (1 Credit)**
Welcomes new students into Jimenez-Porter Writers' House, a literary center for the study of creative writing across cultures and languages, and helps them to understand, develop and write their own artist statement (aka Artist Manifesto). Students will explore the creative and intellectual traditions of our community, their craft and future careers, understand what these traditions are, how they have evolved over time and place, and why they matter. Emphasis will be placed on community building, engagement and participation, with presentations from the editorial staff of Stylus, executive board of Terpoets, Novelist Support Group as well as other professional development opportunities.
**Restriction:** Must be in the Jimenez-Porter Writers' House Living-Learning Program.

**ARHU308 Critical Eras: An Interdisciplanary View (3 Credits)**
An interdisciplinary exploration of a critical period, ranging from a year to an era, stressing the relationship between different forms of human expression and the social milieu.
**Repeatable to:** 6 credits if content differs.

**ARHU309 Writers' House Colloquium: Creative Writing in Community (1-3 Credits)**
Colloquium designed to improve students' skills in literary and communication arts through lectures, workshop and discussions on the history and craft of writing across cultures. Topics include poetry and fiction in translation, and exploration of modes of critique, elements of craft of fiction and poetry, writing for different media, genre writing, writing for performance, screen or scriptwriting and creative non-fiction.
**Prerequisite:** Permission of ARHU-College of Arts & Humanities; and must be admitted to the Jimenez-Porter Writers' House.
**Repeatable to:** 6 credits if content differs.

**ARHU318 Writers' House Colloquium: Creative Writing Across Languages and Cultures (1-3 Credits)**
Colloquium designed to improve students' skills in literary and communication arts through lectures and discussions on the history and craft of writing across cultures. Topics for the different versions of ARHU 318 include poetry, fiction, writing for different media, autobiography and memoir, scriptwriting, screenwriting, and community engagement projects.
**Prerequisite:** Permission of ARHU-College of Arts & Humanities; and must be admitted to the Jimenez-Porter Writers' House.
**Repeatable to:** 6 credits if content differs.

**ARHU319 Writers' House Second Year Colloquium: Form and Theory of Creative Writing (1-3 Credits)**
Required course for Writers' House students pursuing the notation program. Offered in either poetry or imaginative prose writing. Students work at the intermediate level, refining creative writing skills through cross-cultural reading and writing exercises. As part of the course, students attend a series of lectures and readings given by professional writers.
**Restriction:** Must be in the Jimenez-Porter Writer's House program.
**Repeatable to:** 6 credits if content differs.

**ARHU320 Writers' House Second Year Colloquium: Writing for Publication (3 Credits)**
Students write, discuss and revise for multiple forms of publication: reading their own work at least once in public, sending work out for publication to literary journals, and producing a chapbook of high quality by end of semester.
**Recommended:** Completion of ARHU318 and ARHU319 recommended.
**Restriction:** Currently enrolled in Writers' House or permission of program.
**Credit Only Granted for:** ARHU319A or ARHU320.
**Formerly:** ARHU319A.

**ARHU338 Undergraduate Teaching Assistantship in a Living Learning Program (1-3 Credits)**
Offers exceptional students the opportunity to work closely with a faculty member and gain valuable experience. ARHU Living learning program UTAs also serve as peer mentors and program leaders. They assist with course planning, research, and student advising (as appropriate). We are also allowing for variable credit (1-3 cr hrs).
**Restriction:** Sophomore standing or higher; and must be in an ARHU Living Learning Program or be a graduate of the program; and must have permission of the Living Learning Program to enroll.
**Repeatable to:** 6 credits if content differs.

**ARHU340 Financial Entrepreneurship for Arts Leaders (3 Credits)**
An introduction to financial entrepreneurship for the arts leader in order to prepare students for diverse and ever-changing careers in the arts and creative fields. Topics explored will include Professional Paperwork (resumes, cover letters, biographies, job searches), Financial Literacy (taxes, budgets, boards, tickets sales, musicians unions), Marketing (website development, social media, press packets, record labels vs. online distribution, headshots, audience development, community engagement, branded content), Communication (public speaking, writing), and Technology (online tools, computer software, peripherals, recording, photography/videography, on campus resources).
**Cross-listed with:** MUSC448E.
**Credit Only Granted for:** ARHU340 or MUSC448E.

**ARHU350 Chilean Culture, Democracy, and Social Change (3 Credits)**
Short term education abroad course offered in Summer term, in Santiago and Valparaiso, Chile. An exploration of both the conditions that led to the 1973 coup d'etat in Chile, and the complex legacy left by the following dictatorship, including competing economic philosophies that are underpinned by religious, historical, and ideological components. This course focuses on how the arts and literature continued to flourish during the dictatorship, and how they have played a continuing role in the country's recovery from its traumatic past.
**Credit Only Granted for:** ARHU350, ARHU369C, CMLT498C, GVPT309F, HIST329N, HONR349C.
**Formerly:** ARHU369C.

**ARHU351 James Joyce's Dublin: A multi-media Odyssey (3 Credits)**
Chapter by chapter analysis of the text with in situ tours to settings important to the book, and examination of the culture and circumstances from which it arose; review of the impact of Ulysses, and continuing controversies around the text. Multi-media explorations and creative projects will be included in course activities: collaborations on tumblr, and the use of such technologies as vine, instagram, twitter, etc., in an exploration of how our subjective experiences and the expressions they inspire are impacted by new technologies.
**Credit Only Granted for:** ARHU369I, ARHU351, ENGL369J, or HONR349L.
**Formerly:** ARHU369I.

**ARHU358 Becoming Worldwise and Worldready: Finding Success in College and Life (1 Credit)**
Designed to help students navigate the various resources that exist at a large, Research 1 university like the University of Maryland. The course focus is helping them better understand the groundwork needed to transition successfully from underclassman to upperclassman, from an outside major into ARHU or from an external school to UMD, and ultimately from college into life post-graduation.
**Restriction:** Must be enrolled in a major in the College of Arts and Humanities.
**Repeatable to:** 3 credits if content differs.

**ARHU369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ARHU375 The TV Writers Room Screenwriting for Television and Video (3 Credits)**
Students engage with the theory and practice of screenwriting for television and video. Students read and watch teleplays designed to teach advantages of the television format. Students apply what they learn to prepare frequent writing exercises, share and provide feedback for peers scripts in a workshop format, and work together as a Writers Room to prepare an original pilot episode.
**Prerequisite:** ARHU275, ARHU318, or FILM370; and permission of instructor.
**Additional Information:** Priority in enrollment will be given to students participating in the Jimenez-Porter Writers' House and FILM studies programs.

**ARHU376 Writing the Feature Film (3 Credits)**
Examines the creative process of developing and writing a feature-length screenplay. Students will experience a collaborative workshop environment, researching stories, pitching feature film ideas, creating a logline, developing a detailed beat sheet and, ultimately, writing a complete first draft of the screenplay.
**Prerequisite:** ENGL275, ARHU275, ARHU375 or THET340; or permission of instructor.

**ARHU380 Arts & Humanities in Social Innovation, Change, and Justice: Do Good Now (3 Credits)**
The course serves as the core course for the Arts-and-Humanities track in PLCY's minor in "Nonprofit Leadership and Social Innovation." Students will be introduced to the role that the Arts and Humanities can play in social innovation and social change, while exploring various mechanisms for achieving impact with a focus on advancing social justice, equity and systems change. This course deepens understandings of nonprofit leadership, entrepreneurship and social innovation by guiding students through the creation and implementation of social change projects and ventures of their choice.
**Cross-listed with:** JWST319P.
**Credit Only Granted for:** ARHU380, BSOS388B, JWST319P, or PLCY388D.

**ARHU386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Permission of ARHU-College of Arts & Humanities.
**Restriction:** Junior standing or higher.

**ARHU398 Special Topics in Arts and Humanities (3 Credits)**
An in-depth exploration of thematic topics in Arts and Humanities.
**Repeatable to:** 9 credits if content differs.

**ARHU439 Interdisciplinary Studies in Arts and Humanities (3 Credits)**
An interdisciplinary exploration of chronological, geographical or thematic topics in Arts and Humanities.
**Repeatable to:** 6 credits if content differs.

**ARHU440 Arts Leadership Seminar (3 Credits)**
An advanced seminar in arts leadership exposing students to the foundations of arts leadership in not-for-profit organizations as it intersects with current trends in technology, demographics, government policy, and the economy. In case studies based on examples drawn from local arts organizations, students will learn about audience engagement as well as institutional development terminology and best practices.
**Cross-listed with:** TDPS440.
**Credit Only Granted for:** TDPS440 or ARHU440.

**ARHU458 Graduate School Preparation (1 Credit)**
Designed for Juniors and Seniors who are interested in applying to graduate school. Topics include skills needed for the graduate school search and application process, evaluation and reflection of application materials, preparation for GRE exam, and exploration into career options after graduate school. Focus on the Humanities fields.
**Restriction:** Must have earned a minimum of 60 credits.
**Repeatable to:** 3 credits if content differs.

**ARHU468 Peer Mentoring Program (1 Credit)**
A workshop for sophomore, junior or senior students who wish to serve as peer mentors helping first-year students to cope with the numerous issues which often arise in the transition to the university.
**Restriction:** Sophomore standing or higher; and permission of ARHU-College of Arts & Humanities.
**Repeatable to:** 3 credits if content differs.

**ARHU486 Internship Practicum in Arts and Humanities (3-6 Credits)**
An internship intended for students who have already completed an internship for credit. ARHU486 must be a different experience from the internship students have already taken for credit. Generally students intern with a different company, but they may continue working for the same company if the job is significantly different. See ARHU internship coordinator for details.
**Prerequisite:** Have completed previous internship at U of MD.
**Restriction:** Must be in a major in ARHU-College of Arts & Humanities; and permission of ARHU-College of Arts & Humanities; and minimum cumulative GPA of 2.5; and must have earned a minimum of 60 credits; and completed 12 credits at U of MD.

**ARHU489 Advanced Internship Practicum in ARHU (3-6 Credits)**
Designed for students who have already completed at least 2 upper level internship courses for academic credit. It is an advanced practicum to assist students in continuing to develop and hone their professional writing, presentation and analytical skills.
**Prerequisite:** ARHU486.
**Restriction:** Must be in a major in ARHU-College of Arts & Humanities; and minimum cumulative GPA of 2.5; and permission of instructor.
**Repeatable to:** 6 credits if content differs.
**Additional Information:** Course is designed to follow ARHU486.

**ARHU498 Special Topics in Arts and Humanities (3 Credits)**
**Repeatable to:** 6 credits if content differs.

# ARHX - Art History & Archaeology Education Abroad

**ARHX100 Art of Rome (3 Credits)**
An introductory course in the history of art. The course focuses on Rome, from its origin to contemporary times. Masterpieces of painting, sculpture, architecture and urban planning are examined within their historical contexts. The course hones a method of description, critical analysis and interpretation of art and builds an understanding of traditional forms and cultural themes useful in the comprehension of all western art.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ARHX201 Media, Art and Social Activism (3 Credits)**
Focuses on media that have been created expressly for communicating and/or promoting positive social change, blending social theory with aesthetics and civics. The course investigates current trends in visual communication, as well as the methods for how to analyze and contextualize these, with an emphasis on politics in art and new media.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ARHX205 Art Histories: An Introduction to the Visual Arts in London (3 Credits)**
Focuses on the rich visual resources of London by exploring histories and theories of art while examining issues of museology, curatorial practice, and art criticism. This course helps develop skills of visual analysis and provides an understanding of a range of artistic movements and the themes, preoccupations, and stylistic forms which characterize them.
**Additional Information:** This course is offered as part of the ARHU-in-London study abroad program. Students must apply for this program through Education Abroad: More information at globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**ARHX206 History of Italian Design (3 Credits)**
The history of design and production in Italy from the industrial revolution to the present, ranging from industrial, to product, to furniture design; giving attention to the extraordinary blend of imagination and exactitude that characterizes Italy. During the semester we will trespass in the world of fashion design as well as that of car styling. Particular importance will be given to the parallel production of visual arts, cinema, literature and other fields of culture.
**Credit Only Granted for:** ARTH269D or ARHX206.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

**ARHX300 The Art of Florence: Exploring Visual Culture (3 Credits)**
During the Renaissance, the city of Florence was the site of some of the most remarkable artistic experiences in European history. Why, though, should one city have contributed so much to the course of the arts? Why should so many of the city's works of art, monuments, and buildings have played a major rule in the development of the visual arts? What set of circumstances and conditions made this possible? This course is designed to explore these questions through an examination of historical factors that made Florence the birthplace and point of reference for what we now call "Renaissance art."
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

**ARHX301 New Perspectives: Visual Technology in Renaissance and Baroque Art (3 Credits)**
This interdisciplinary course explores the depiction of visual space in Renaissance and Baroque Art through the medium of modern technologies. The visual theories of authors including Leon Battista Alberti, Piero della Francesca and Leonardo da Vinci will be given practical application through the use of the digital design software Autodesk Autocad.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ARHX302 Raphael and The High Renaissance in Florence and Rome (3 Credits)**
This course will examine the career and achievements of Raphael (1483-1520), and will consider the artist in the context of the High Renaissance in Florence and Rome. It will consider the sources and documents for his career, as well as the later historiography, and it will include study of the many works by Raphael in Rome and in the Vatican Museums.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ARHX303 Nordic Contemporary Art (3 Credits)**
Focuses on current trends and the dynamics of regional identity in contemporary art, art history, and curating. The Stockholm art scene is used as an entry-point to analyze artworks, exhibitions and texts: What is contemporary, and what is Nordic, about the art and issues that surface here?
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**ARHX304 Contemporary Spanish Art (3 Credits)**
A dynamic, multi-disciplinary introduction to Contemporary Art in Spain. We will discuss recent classics as well as emerging artists, and we will cover a wide range of artistic practices, from photography to afterpop music, including installation art, performance art and comic art.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**ARHX310 The Business of Art: The Economics and Management of Culture (3 Credits)**
Markets for visual arts provide a particularly fertile ground for those concerned with the economics of culture. The study of the past and current structure of the market for visual art, the mechanisms that fuel this flourishing market and the involvement of public and private institutions in the context of the current globalization of the arts, provides significant instruments for the development of museum management studies, as well as a different methodological approach to art history and history of culture management.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

**ARHX311 Feminism in Art (3 Credits)**
Explores the developing presence of female artists in visual art and contemporary culture through seminars, exhibitions, and theater shows. Analyzes the relationship of women in the history of contemporary art and their contribution to both conceptual and linguistic innovation, and feminism as the most radical cultural transformation of the contemporary era.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

**ARHX312 20th Century Italian Art (3 Credits)**
Explores artistic movements in Italy over the last century, beginning with an exploration of the roots of avant-garde trends in the 19th century and moving into Divisionism, Macchiaioli, Futurism, Metaphysical painting, the abstract movement of the 1930's, Arte Povera as well as the art of the present.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

**ARHX313 London and its Museums (3 Credits)**
Through weekly visits to varying museums around London, this course equips students to consider history in a broader perspective, evaluate exhibition experiences, and apply research to museum studies. Explores London's collections to contextualize and critically evaluate the cultural and historical value, purpose, and educational role different types of exhibiting space hold.
**Additional Information:** This course is offered as part of the ARHU-in-London study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/ARHULondon. Education Abroad processes registrations for this course on behalf of students.

**ARHX314 Michelangelo: Painter, Sculptor, Architect (3 Credits)**
Explores the life and work of Michelangelo, one of the most revolutionary, respected, and influential Renaissance artists. Focuses on four main and interrelated areas, and the dynamic relationships between them: painting, sculpture, architecture, and drawing. Looks at Michelangelo's works, working process, interactions with patrons, and his impact on others. Also explores Michelangelo's works in person in museums, churches, piazza, and town halls.
**Credit Only Granted for:** ARTH369M or ARHX314.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

**ARHX315 Archaeology and Art of Ancient Italy (3 Credits)**
Provides an overview of Ancient Italy from the 8th century B.C.E. to the 5th century C.E. as interpreted through archaeology, the study of past cultures and societies through their material remains. Explores varieties of archaeology and examines theory, methods, and techniques for investigating and reconstructing the past through a combination of in-class lectures, field trips, site visits to museums and archaeological digs in Tuscany.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11293. Education Abroad processes registrations for this course on behalf of students.

# ARMY - Army

**ARMY105 Basic Military Science II (3 Credits)**
Exploration of the Army Leadership Model through classroom instruction, leadership training and mentorship. Develops knowledge and competency in physical fitness through rigorous training and experiential leadership education through leadership laboratories.
**Credit Only Granted for:** ARMY119 or ARMY105.

**ARMY106 Basic Military Science I (3 Credits)**
Introduction to the personal challenges and competencies that are critical for effective leadership and communication. Develops knowledge and competency in physical fitness through rigorous training and experiential leadership education through leadership laboratories.
**Restriction:** Students must meet Officer candidate criteria to participate in field training.

**ARMY110 Intro to Army Military History (3 Credits)**
This course is composed of 46 modules, including 43 lessons and 3 exams, covering military history from early colonial warfare in the eighteenth century to the global war on terrorism in the twenty-first century. The course begins with a pretest, which provides the learner with insight into what will be covered in the course and an opportunity to gauge their knowledge coming into the course. Each lesson will include readings and an Interactive Multimedia Instruction (IMI) piece. Discussion activities, writing assignments, and midterm and final exams will allow students to synthesize what they have learned.
**Restriction:** Must be in the Army ROTC program.

**ARMY119 ARMY ROTC INDEPENDENT STUDY (1 Credit)**
Exploration of the Army Leadership Model through group discussion, leadership exercises and research.
**Restriction:** Permission of UGST-Army ROTC.
**Repeatable to:** 2 credits.
**Credit Only Granted for:** ARMY119 or ARMY105.
**Additional Information:** -Intended to impart the lecture curriculum of ARMY105 without the labs.

**ARMY201 Army Leadership Development (3 Credits)**
This course is an intensive examination of the Army Leadership Model in practice. The model is compared to leadership styles and techniques from government and industry and the comparative effectiveness of each. Students form their own personal leadership styles.
**Restriction:** Sophomore standing or higher.

**ARMY202 Military Leadership in Practice (3 Credits)**
This course uses the case study method to examine the Army Leadership Model as applied to assigned missions in U.S. history. Students learn to evaluate and assimilate effective leadership methods and techniques. Includes a laboratory period in which case studies are worked out and presented by individuals and groups.

**ARMY301 Advanced Military Leadership I (3 Credits)**
Reinforces understanding and application of Army leadership strategies, critical decision making methodologies, physical and mental fitness excellence. Includes a laboratory period in applied leadership, common military tasks and physical fitness.

**ARMY302 Advanced Military Leadership II (3 Credits)**
Prepares contracted students for certification at the Army National Advance Camp, a prerequisite for commissioning as an officer in the U.S. Army. Focus is directed to military tactics, squad and platoon drills, marksmanship, land navigation and fitness excellence. Includes a laboratory period in applied leadership skills as well as a three day field exercise.

**ARMY401 Advanced Military Leadership III (3 Credits)**
Introduces contracted students to the study of Army structure, practices and processes exercised by Army Commanders and Staff in completing personnel, logistics, training and combat operations. Includes a laboratory in applied leadership skills and two field exercises.

**ARMY402 Advanced Military Leadership IV (3 Credits)**
The military system and code of ethics in the military environment is studied. Topics include code of conduct during all forms of military operations, the Geneva Conventions and the ethical decision making process. Also includes a laboratory in applied leadership skills, fitness excellence and two field exercises.

# ARSC - Air Science

**ARSC100 Heritage and Values I (1 Credit)**
Freshman course for AFROTC cadets. Introduces students to the United States Air Force and encourages participation in Air Force Reserve Officer Training Corps. Featured topics include: overview of ROTC, special programs offered through ROTC, mission and organization of the Air Force, brief history of the Air Force, introduction to leadership and leadership related issues, Air Force Core Values, Air Force officer opportunities, and an introduction to communication studies. Leadership laboratory is mandatory for AFROTC cadets and complements this course by providing cadets with followership experiences.
**Corequisite:** AFROTC cadets must also register for ARSC059.

**ARSC101 Heritage and Values II (1 Credit)**
Freshman course for AFROTC. Continuation of ARSC100 for freshmen AFROTC cadets. Study of topics relating to the Air Forces and defense. Focuses on organizational structure and missions of the Air Force; officership and an introduction to both written and oral communication skills.
**Corequisite:** AFROTC cadets must also register for ARSC059.

**ARSC200 Team and Leadership Fundamentals I (1 Credit)**
Sophomore course for AFROTC cadets. Study of factors contributing to the development of air power from its earliest beginnings through two world wars; the evolution of air power concepts and doctrine; introductory leadership; and assessment of communicative skills.
**Corequisite:** AFROTC cadets must also register for ARSC059.

**ARSC201 Team and Leadership Fundamentals II (1 Credit)**
Continuation of ARSC 200 for sophomore AFROTC cadets. The study of historical events, leaders, and technical developments which surrounded the growth of air power; the basics of leadership; environment of an Air Force officer; and concepts of ethical behavior.
**Corequisite:** AFROTC cadets must also register for ARSC059.

**ARSC300 Leading People and Effective Communication I (3 Credits)**
The study of leadership and management fundamentals, professional knowledge, Air Force doctrine, and written and oral communication skills. Case studies are used to examine leadership and management situations. This course will satisfy credit toward a minor in military studies.
**Corequisite:** AFROTC cadets must also register for ARSC059; or permission of UGST-AFROTC-Air Science.
**Restriction:** Junior standing or higher.

**ARSC301 Leading People and Effective Communication II (3 Credits)**
Continuation of ARSC300. Study of leadership and management skills and leadership ethics as well as written and oral communication skills required of Air Force officers. This course will satisfy credit towards a minor in military studies.
**Corequisite:** AFROTC cadets must also register for ARSC059; or permission of UGST-AFROTC-Air Science.
**Restriction:** Junior standing or higher.

**ARSC399 Independent Study in Air and Space Power Implementation (1-3 Credits)**
Independent study to broaden understanding of the implementation of air and space power. Topics of research are selected by the student and instructor to focus the student on a particular aspect of air and space power implementation during a particular campaign or conflict.
**Prerequisite:** Permission of UGST-AFROTC-Air Science.
**Recommended:** ARSC401 and ARSC400.

**ARSC400 National Security and Preparation for Active Duty I (3 Credits)**
Study of American national security policy and processes to include information and implementation, impact of major national and international actors, and development of major policy issues. This course will satisfy credit towards a minor in military studies.
**Prerequisite:** Permission of UGST-AFROTC-Air Science; or (ARSC300 or ARSC301).
**Corequisite:** ARSC059; or permission of UGST-AFROTC-Air Science.
**Restriction:** Senior standing.

**ARSC401 National Security and Preparation for Active Duty II (3 Credits)**
This course examines various subjects including: military law/justice, preparation for active duty, and current issues affecting military professionalism. This course will satisfy credit towards a minor in military studies.
**Prerequisite:** ARSC300 or ARSC301; or permission of UGST-AFROTC-Air Science.
**Corequisite:** ARSC059; or permission of UGST-AFROTC-Air Science.
**Restriction:** Senior standing.

# ARTH - Art History & Archaeology

**ARTH169 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ARTH200 Art and Society in Ancient and Medieval Europe and the Mediterranean (3 Credits)**
Examines the material culture and visual expressions of Mediterranean and European societies from early times until ca. 1300 CE, emphasizing the political, social, and religious context of the works studied, the relationships of the works to the societies that created them, and the interrelationship of these societies.

**ARTH201 Art and Society in the West from the Renaissance to the Present (3 Credits)**
Examines representative European and American works of art from the later Middle Ages to the present, highlighting the dynamic exchange between artistic and cultural traditions both within periods and across time.

**ARTH230 Symbolic Images: The Theory and Practice of Iconography in European Art, 1400-1850 (3 Credits)**
Iconographic interpretation of visual narratives, signs and symbols has long been a topic of art-historical inquiry. In early modern European art, images were often conceived with the deliberate intent of posing a 'puzzle' or 'problem' for the beholder to solve; yet in most cases we have little or no evidence of how contemporary beholders solved such enigmas. Provides students with the opportunity to take command of these research methods and source materials, addressing a genuine iconographic problem, researching the relevant literature, identifying the essential primary source evidence, making contextually appropriate assumptions, and producing a valid result.

**ARTH240 Humanists on the Move (3 Credits)**
Introduces students to the practices of a field that is only about twenty years old: the Digital Humanities. We will explore how humanities scholars can reexamine their materials, configuring them as "data" that can be gathered and visualized in order to ask new questions about the past. Using traditional humanities source materials from this different perspective, students will produce entirely new data; using new digital platforms, they will create visualizations of that data; and using humanistic methods, they will interpret those visualizations. Focusing on the original Humanists from the Renaissance period, this course will teach students to engage closely with the most traditional materials of the humanities - primary texts produced in an historical period - and with the newest tools to work with humanities data. Students will complete two major projects by collecting data on the same humanist figures: mapping their travels, and tracing their networks. We will also consider how texts can be treated as data.

**ARTH255 Art and Society in the Modern American World (3 Credits)**
Explores the origins and evolution of art in the modern American world, from the late colonial era to the present, comparing major artistic movements and their historical contexts. Considers the diversity of art across Latin America and the United States, and the ways in which artworks mediate social, ethnic, political, and national identities.

**ARTH260 Art and Activism (3 Credits)**
Can art effect social change? How may we use the history of radical and avant-garde art to inform present-day movements and models of artistic and creative activism? This course explores the modern and contemporary history of political art and arts activism on local, national, and global scales.

**ARTH261 Monuments, Monumentality, and the Art of Memorial (3 Credits)**
Why do societies create monuments? And why do they preserve and destroy, change and remove them? How do monuments embody cultural values, shape historical narratives, and become sites of mourning and memory? This course investigates the political and cultural work of monuments across time and space, from the ancient world to European empires to the contemporary United States. The issues we consider include intercultural exchange and religious contexts, race and representation, and appropriation and iconoclasm.

**ARTH262 Public Art (3 Credits)**
How does public art function on a university campus, in major cities, and across the United States? This course invites students to empirically study the modern history and civic values of public art spanning sculpture, painting, mixed-media, and installation. We consider the nature of public space, the politics of representation and community, and the civic and memorial functions of art. The course is built around a semester-long project in which students will commission a work of public art for our College Park campus.

**ARTH263 Art and Difference (3 Credits)**
A comparative and thematic approach to studying the representation of otherness in art and visual culture from the eighteenth century to the present. Students will work to expand the definition of otherness, and consider the roles that ethnicity, nationality, and politics play in representations of otherness across various continents and chronologies.

**ARTH265 How (and Why) to Look at Art in the Era of Climate Change (3 Credits)**
How can art help us build the mindset necessary for fashioning a sustainable civilization? Paintings, photographs, films, novels, songs, and other creative works as they shape beliefs related to sustainability and justice.
**Credit Only Granted for:** ARTH265 or ARTH465.
**Formerly:** ARTH465.

**ARTH269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.
**Additional Information:** No more than 3 credits total of ARTH 269 or ARTH 289 can be used to satisfy the art history major requirement.

**ARTH289 Special Topics in Art History and Archaeology (3 Credits)**
Selected topics in the visual arts to introduce students to the history of various modes of visual expression and communication.
**Repeatable to:** 6 credits if content differs.
**Additional Information:** No more than 3 credits total of ARTH269 or ARTH289 can be used to satisfy the art history major requirement.

**ARTH290 Art and Society in Asia (3 Credits)**
A comparative, interrelational study of the different visual arts and material cultures produced by societies in Asia. An examination of the historical traditions and forms in political, social, and religious contexts.

**ARTH292 Discovering Japan: How the Arts Shaped a Nation (3 Credits)**
Explores the origins and creation of Japan from ancient to contemporary times through East Asian and European exchange. Acquaints students with painting, sculpture, architecture, ceramics, gardens, and other art forms in relation to the various cultural contexts within which they were produced and used.

**ARTH300 Egyptian Art and Archaeology (3 Credits)**
Sites and monuments of painting, sculpture, architecture, and the minor arts of ancient Egypt from earliest times through the Roman conquest. Emphasis on the pharaonic period.

**ARTH301 Aegean Art and Archaeology (3 Credits)**
Sites and monuments of painting, sculpture, architecture, and the minor arts of Crete, the Cycladic islands, and the Greek mainland from the earliest times to the downfall of the Mycenaean empire.

**ARTH302 Greek Art and Archaeology (3 Credits)**
Sites and monuments of painting, sculpture, architecture, and the minor arts from the Geometric through the Hellenistic period with emphasis on mainland Greece in the Archaic and Classical periods.

**ARTH303 Roman Art and Archaeology (3 Credits)**
Sites and monuments of painting, sculpture, architecture, and the minor arts from the earliest times through the third century A.D. with emphasis on the Italian peninsula from the Etruscan period through that of Imperial Rome.

**ARTH305 Archaeological Methods and Practice (3 Credits)**
A team-taught, interdisciplinary course discussing theories, methods, and ethical issues in the practice of archaeology.
**Prerequisite:** ANTH240, ARTH200, or CLAS180.
**Cross-listed with:** ANTH305, CLAS305, JWST319Y.
**Credit Only Granted for:** ANTH305, ARTH305, CLAS305, or JWST319Y.

**ARTH313 Medieval Art: Cultural Exchanges in the Byzantine World (3 Credits)**
Focuses on the art and architecture from the eastern Mediterranean, specifically, the Byzantine empire. Our broad focus will be on the formation and evolution of the visual arts in Byzantium as a result of exchanges with various cultural, ethnic, and religious entities and traditions. In this context, we will be looking at the legacy of the Graeco-Roman past, contacts with Islamic world, as well as with people and cultures along the periphery of Byzantium: from the Balkan peninsula, to Sicily and Russia.
**Recommended:** ARTH200 or ARTH201.

**ARTH320 Fourteenth and Fifteenth-Century Northern European Art (3 Credits)**
The art of northern Europe with an emphasis on painting in the Netherlands and France.

**ARTH321 Northern European Art of the 16th Century: Art in the Age of Renaissance and Reformation (3 Credits)**
Painting in France, Germany, England, and the Low Countries during the Renaissance and Reformation.

**ARTH322 Van Eyck to Bruegel: The Renaissance in Northern Europe (3 Credits)**
The tradition of pictorial art in the Netherlands from its flowering in the courts and cities of the early 15th century to the cataclysmic moment of iconoclasm in 1566. It will feature works by famous masters like Jan van Eyck, Hieronymus Bosch, Albrecht Durer, and Pieter Bruegel, but also objects created by lesser-known and anonymous makers. It will treat artworks -- illuminated books, tapestries, paintings, and printed images -- as complexly embedded in the great economic, social, and religious upheavals of this period, particularly considering the transition from feudalism to capitalism, the Reformation, and the sense of "discovery" of new worlds.

**ARTH323 Fifteenth-Century Italian Renaissance Art (3 Credits)**
Painting, sculpture, architecture, and the decorative arts of the fifteenth century in Italy.

**ARTH324 Leonardo's World: Art and Experience in Renaissance Italy (3 Credits)**
Painting, sculpture, architecture, and the decorative arts of the sixteenth century in Italy.

**ARTH330 Seventeenth-Century European Art (3 Credits)**
Painting, sculpture and architecture concentrating on Italy, Spain, France, and England.

**ARTH335 Seventeenth-Century Art in the Netherlands (3 Credits)**
Painting, sculpture and architecture in seventeenth-century Netherlands.

**ARTH337 Cities and the Arts (3 Credits)**
Cities and the Arts, as taught by different faculty members in the Department of Art History and Archaeology, will investigate the urban environment and visual culture(s) of one or several major centers. The class will consider how a large city's culture absorbs, transforms, and utilizes multiple external sources in developing a particular local brand defined as its "identity." It examines the visualization of ideals of local coherence as well as the arts of fragmentation and competing internal cultures. Cities and the Arts considers how a large city's interface with an expanding external world, even a global one, allows for appropriations and the rise of discrimi-nations; it examines how exclusions form within the city itself, and how social groups visually articulate identities that may run counter to the larger urban mythology.

**ARTH346 Nineteenth-Century European Art from 1850 (3 Credits)**
Major trends from Realism and Impressionism to Symbolism, exploring the historical context, in which concepts of gender, class, and race are integral to the transformation of Western art.

**ARTH350 Twentieth-Century Art to 1945 (3 Credits)**
Painting, sculpture, and architecture in Europe and America from the late nineteenth century to the end of World War II.
**Prerequisite:** ARTH201.

**ARTH351 Picturing Contemporary Life: Art Since 1945 (3 Credits)**
Visual art since 1945, with an emphasis on North America and Europe.

**ARTH357 History of Photography (3 Credits)**
An exploration of the historical, social, aesthetic, and technological developments of the photographic medium and its relationship to other modes of visual representation in the creation of the modern world.
**Credit Only Granted for:** ARTH357 or ARTH457.

**ARTH359 Film as Art (3 Credits)**
The study of film as a visual art, from theoretical, cultural and aesthetic perspectives. Content varies by semester.
**Repeatable to:** 6 credits if content differs.

**ARTH360 History of American Art to 1876 (3 Credits)**
Painting, sculpture, architecture, and decorative arts in North America from the colonial period to 1876.

**ARTH361 American Art from Civil War to Civil Rights (3 Credits)**
Explores diverse artistic movements and makers in the United States, beginning at the end of the Civil War in 1865 and concluding with the art of Civil Rights era in the 20th century. We will ask how the visual arts construct and challenge formations of race, class, gender, and citizenship in the context of political transformations and social movements over a century of US history. This course emphasizes the practice of close looking as we encounter works art across a range of media--photography, painting, sculpture, film, material culture, performance art and public art.

**ARTH362 Presently Black: Contemporary African American Art (3 Credits)**
Looks critically at African-American and African diaspora art, focusing particularly on works made in the 20th and 21st centuries. Organized chronologically, this class will provide students with a more thorough understanding of this period of art, as well as the overall connection of visual material to the social, the political, and the aesthetic frames of its production. We will study the ways in which African-American visual production has been shaped by larger discourses about American art, but has also responded to the very real circumstances of racial exclusion in both the mainstream art world and larger society. Students will also have a chance to interact directly with the collection of the David C. Driskell Center throughout the semester.

**ARTH369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.
**Additional Information:** No more than 6 credits of ARTH 369 can be used to satisfy the art history major requirements.

**ARTH370 Latin American Art and Archaeology before 1500 (3 Credits)**
Pre-Hispanic painting, sculpture, and architecture, with a focus on the major archaeological monuments of Mexico.

**ARTH372 Modern Latin American Art to 1945 (3 Credits)**
Painting and sculpture in Latin America, with an emphasis on avant-garde movements in Mexico City, Havana, Buenos Aires, Sao Paulo, and Rio de Janeiro.

**ARTH376 Living Art of Africa (3 Credits)**
Art styles among the segmentary, centralized, and nomadic people of Africa. The iconography and function of their art and its relationship to their various societies, cults and ceremonies.

**ARTH377 Global African Art (3 Credits)**
A survey of the African-inflected arts around the world, focusing on such countries as Brazil, Haiti, Cuba and the United States

**ARTH378 Special Topics for Honors Students (3 Credits)**
Writing of a research paper. With an instructor's permission work may be done in conjunction with a graduate colloquium or seminar.
**Prerequisite:** Must be admitted to art history honors; and permission of ARHU-Art History & Archaeology department.
**Restriction:** Must be in Art History program.
**Repeatable to:** 6 credits.

**ARTH383 Art of Japan after 1500 (3 Credits)**
Thematically-focused topics in the painting, sculpture, architecture, gardens and decorative arts of early modern, modern and contemporary Japan, from 1500 to present.

**ARTH385 Art of China (3 Credits)**
A chronological survey of Chinese painting, sculpture, and the applied arts.

**ARTH386 Experiential Learning (3-6 Credits)**
Supervised internship experience in diverse areas of art historical, archaeological, and museological work.
**Prerequisite:** Permission of ARHU-Art History & Archaeology department.
**Restriction:** Junior standing or higher.

**ARTH389 Special Topics in Art History and Archaeology (3 Credits)**
**Repeatable to:** 6 credits if content differs.

**ARTH391 Transnational Chinese Cinema (3 Credits)**
Chinese cinema has made a big impact on contemporary world film culture. This course will introduce students to the films directed by some of the most representative filmmakers working in different geopolitical locations (mainland China, Taiwan, Hong Kong) and the Chinese diaspora. The films of these directors, in a spectrum of genres, themes, and styles, have inspired global scholarship, not only in visual culture and cinema, but also in the study of women's issues, gender and ethnic studies, as well as the fields of adaptation and intermedia studies. Students will explore these films in their socio-historical and artistic contexts, considering the influences and innovations that have shaped them and analyzing their reception by audiences and critics. After reading about the films they view, and participating in class discussions, students will be ready to complete their analytical written assignments, for which they will critically examine the films by applying key concepts such as gender, sexuality, race, gaze, style, representation, power, diaspora, etc.
**Cross-listed with:** CINE335.
**Credit Only Granted for:** ARTH391 or CINE335.

**ARTH392 Contemporary Chinese Art and Film (3 Credits)**
Contemporary Chinese art and film are arguably the most vibrant of all national arts at the turn of the millennium and have become the face - both figuratively and literally - of contemporary China, a complex society with historic overlays of Confucianism, Taoism, Buddhism, Communism, Post-socialism, and state capitalism. Students will consider a wide range of art forms (painting, photography, video, installation, web-based media, and film) in four broad themes (uses of the past; critiques of power; representations of race, gender, and sexuality; socially engaged art) and explore the complex intertwining of the political, historical, and aesthetic aspects in Chinese contemporary art and film, as well as the multiple contexts in which these artworks are created and circulated.
**Cross-listed with:** CINE337.
**Credit Only Granted for:** ARTH392, FILM329L or CINE337.
**Formerly:** FILM329L.

**ARTH418 Special Problems in Italian Renaissance Art (3 Credits)**
Focus upon aspects of painting, sculpture, and architecture of Renaissance.
**Repeatable to:** 6 credits if content differs.

**ARTH426 Renaissance and Baroque Sculpture in Northern Europe (3 Credits)**
Sculpture in France, Germany, England, and the Low Countries from the fourteenth to the seventeenth century.

**ARTH472 Ecuador: Andean Spaces-Traversing the Colonial City and the Natural World (3 Credits)**
Introduces students to the history and cultures of Ecuador from the colonial period to the beginning of the 19th century. By studying the socio-spatial configuration of the colonial city as exemplified by Quito, students will be immersed in the art, architecture, and other rich cultural legacies of Ecuador. Quito, a World Heritage site, offers students visually stunning churches, monasteries, colonial squares, a famed tradition of Baroque painting and sculptures, and vibrant indigenous and mestizo communities. As a contrast, students will explore also travel narratives that represent the natural Andean world while visiting Quito's surrounding areas. This course will interrogate the European influence on urban design and representations of the landscape of the Americas. Understanding this colonial past enhances the understanding of the modern history of the Andean region and Latin America as a whole. The students will gain a full appreciation of the European and Indigenous living heritage that composes the region today. Taught in English.
**Cross-listed with:** SPAN435.
**Credit Only Granted for:** SPAN435, SPAN448E, ARTH472 or ARTH369E.
**Formerly:** SPAN448E and ARTH369E.

**ARTH484 Modern Chinese Film and Visual Culture (3 Credits)**
Modern Chinese culture, society, and history studied through examples of art, film, and visual culture.
**Cross-listed with:** CINE426.
**Credit Only Granted for:** ARTH484, CINE426 or FILM426.
**Formerly:** FILM426.

**ARTH488 Colloquium in Art History (3 Credits)**
Colloquium to investigate a specific topic in depth.
**Prerequisite:** Permission of ARHU-Art History & Archaeology department.
**Repeatable to:** 9 credits if content differs.

**ARTH489 Special Topics in Art History (3 Credits)**
**Prerequisite:** Permission of ARHU-Art History & Archaeology department.
**Repeatable to:** 9 credits if content differs.

**ARTH496 Methods of Art History and Archaeology (3 Credits)**
Methods of research and criticism applied to typical art-historical/archaeological problems, familiarizing the student with bibliography and other research tools. Introduction to the historiography of art history and archaeology, surveying the principal theories, encouraging methodological debates within the discipline. Course for majors who intend to go on to graduate school.
**Prerequisite:** Permission of ARHU-Art History & Archaeology department.
**Restriction:** Must be in Art History program.

**ARTH498 Directed Studies in Art History I (2-3 Credits)**
**Prerequisite:** Permission of ARHU-Art History & Archaeology department.
**Restriction:** Junior standing or higher.
**Repeatable to:** 99 credits if content differs.

**ARTH499 Honors Thesis (1-6 Credits)**
**Prerequisite:** Permission of ARHU-Art History & Archaeology department.
**Repeatable to:** 6 credits if content differs.

# ARTT - Art Studio

**ARTT100 Two-Dimensional Design Fundamentals (3 Credits)**
Principles and elements of two-dimensional design. Introduction to visual communication.

**ARTT110 Elements of Drawing I (3 Credits)**
Fundamental concepts, media, and processes of drawing. Emphasis on observation and representation in combination with individual expression. Subject matter includes still life, human figure, nature, the built environment, and conceptual projects.

**ARTT150 Introduction to Art Theory (3 Credits)**
Fundamental concepts of global, philosophic, and critical art theory examined through various historic and contemporary texts, and the analysis of works of art.

**ARTT169 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ARTT200 Three-Dimensional Art Fundamentals (3 Credits)**
Fundamental concepts of three-dimensional form and space examined through the manipulation and organization of various materials.
**Prerequisite:** ARTT100 and ARTT110.

**ARTT208 Intermediate Special Topics in Art (3 Credits)**
Intermediate special topics in Art.
**Repeatable to:** 6 credits if content differs.

**ARTT210 Elements of Drawing II (3 Credits)**
Continuation of ARTT110 with additional emphasis on color, figure drawing, and contemporary issues.
**Prerequisite:** ARTT110.

**ARTT255 Introduction to Digital Art and Design Processes (3 Credits)**
Introduction to basic software and principles of digital imaging, and how they are applied to art and design. Topics covered: Digital image construction and manipulation, Vector-Based digital techniques layout, typography, etc), time-based digital techniques (video and audio composition and manipulation), and basic interactivity (web-design). Digital media used to explore visual principles established in ARTT100.
**Prerequisite:** ARTT100 and ARTT110.
**Credit Only Granted for:** ARTT255 or ARTT354.
**Formerly:** ARTT354.

**ARTT260 Dangerous Art: Censorship or Subsidy (3 Credits)**
Combines a broad historical analysis of the relationship between art and authority with an examination of contemporary culture criticism and art practice. Explores the uses and abuses of art and culture in totalitarianand theocratic states as a prelude to a review of the role of official culture in the United States. Examines art and culture in the public arena and many related areas where the arts and policy interact.

**ARTT269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ARTT320 Elements of Painting (3 Credits)**
Concepts and fundamental processes of oil and/or acrylic painting.
**Prerequisite:** ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department.

**ARTT330 Elements of Sculpture: Metal Casting (3 Credits)**
Sculptural concepts and fundamental processes related to metal casting.
**Prerequisite:** ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department.

**ARTT331 Elements of Sculpture: Steel (3 Credits)**
Sculptural concepts and fundamental processes related to steel fabrication; torch cutting, welding, hot forging, and finishing.
**Prerequisite:** ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department.

**ARTT333 Elements of Sculpture: Wood and Mixed Media (3 Credits)**
Sculptural concepts and fundamental processes using wood and mixed media.
**Prerequisite:** ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department.

**ARTT341 Elements of Printmaking: Woodcut and Relief (3 Credits)**
Concepts and fundamental processes related to woodcuts, linocuts, and other relief printing media.
**Prerequisite:** ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department.

**ARTT343 Elements of Printmaking: Screen Printing (3 Credits)**
Concepts and fundamental processes related to silkscreen printing.
**Prerequisite:** ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department.

**ARTT353 Elements of Photography (3 Credits)**
Introduction to digital photographic image-making. With an emphasis on technical, aesthetic and conceptual understanding of the photographic medium, camera operation, and photographic composition. Students must have access to a Digital SLR or mirrorless camera capable of interchangeable lenses for this class.
**Prerequisite:** ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department.

**ARTT355 Intermediate Graphic Design Principles (3 Credits)**
Investigation of basic concepts, history, techniques, and materials used by professional graphic designers, focusing on typography. Explores various aspects of design related to typography through examination and production of many types of finished work.
**Prerequisite:** ARTT150, ARTT200, ARTT210, and ARTT255; and must be admitted to the Graphic Design Concentration (Track 3).
**Credit Only Granted for:** ARTT350 or ARTT355.
**Formerly:** ARTT350.

**ARTT356 Graphic Design Processes (3 Credits)**
Explores computer graphics and visual communcation principles in a time-based context. Examination of fundamental design principles through digital projects that involve photo manipulation, digital illustration, layout, animation, and web design.
**Prerequisite:** ARTT150, ARTT200, ARTT210, and ARTT255; and must have been admitted to Graphic Design Concentration (Track 3).
**Credit Only Granted for:** ARTT351 or ARTT356.
**Formerly:** ARTT351.

**ARTT357 Interactive Design (3 Credits)**
In-depth exploration of interactive design and website construction. Emphasis on concept-driven and community-based projects using variety of interactive software programs.
**Prerequisite:** ARTT355 and ARTT356.

**ARTT360 African American Art Theory: Exploration/Expression of Identity (3 Credits)**
Examines how African American artists have used their work to represent, reinvent, and subvert racial identity. By examining changes in modes of expression, formal concerns, and pictorial themes, it will explore the impact of black aesthetics in American art.
**Prerequisite:** ARTT150.
**Credit Only Granted for:** ARTT360 or HONR279C.

**ARTT361 Design Literacy: Decoding Our Visual Culture (3 Credits)**
Holistic presentation of design history and theory from pre-history to present. Covers primarily visual communication design and includes the interrelationship of interior-, furniture-, industrial-, fashion-design, and architecture.
**Prerequisite:** ARTT355 and ARTT356.
**Credit Only Granted for:** ARTT361 or ARTT489L.
**Formerly:** ARTT489L.

**ARTT369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ARTT370 Elements of Digital Media (3 Credits)**
Exploration of image creation and manipulation, interactivity, and linkages between digital audio and video. Emphasis on issues in contemporary digital art.
**Prerequisite:** ARTT150, ARTT200, ARTT210, and ARTT255; or permission of ARHU-Art department.

**ARTT386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Permission of ARHU-Art department.
**Restriction:** Junior standing or higher.

**ARTT389 Department of Art Undergraduate Teaching Assistantship (3 Credits)**
Individual contractual agreement with faculty/mentor. Individualized assistantship in the teaching of a specified department course offering. Must have previously received an "A" grade for the class to be assisting.
**Prerequisite:** Permission of ARHU-Art department.
**Repeatable to:** 6 credits if content differs.

**ARTT399 Department of Art Research Assistantship (1-3 Credits)**
Individual contractual agreement with faculty/mentor. Individualized experiential learning developed in relation to art-related research issues.
**Prerequisite:** Permission of ARHU-Art department.
**Repeatable to:** 6 credits if content differs.

**ARTT409 Study Abroad Special Topics IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ARTT418 Advanced Drawing Studio (3 Credits)**
Multi-level drawing studio emphasizing advanced concepts and processes related to drawing; emphasis on contemporary art issues and individual directions.
**Prerequisite:** ARTT200, ARTT210, and ARTT150; and must have completed one 300-level studio course. Or permission of ARHU-Art department.
**Repeatable to:** 12 credits.

**ARTT426 Advanced Painting: Painting on Site I (3 Credits)**
Designed for Art and design, architecture, urban planning, and public engagement majors seeking to gain more experience in the public art process. Through public artworks, students will explore ethical methods of community engagement, mural design and production. This course will have 1-2 visiting artists give lectures and/or participate in a workshop.
**Prerequisite:** ARTT320; or permission of the Art Department.

**ARTT427 Advanced Painting: Painting on Site II (3 Credits)**
Designed for Art and design, architecture, urban planning, and public engagement majors and Creative Placemaking minors seeking to build and strengthen relationships through public place-based artwork . This course will teach ethical methods of public outreach through community engagement, the stages of mural design, and research to aid the mural design phase. This course will also examine the various materials used to create a public work of art and apply them throughout the semester effectively.
**Prerequisite:** ARTT320.
**Restriction:** Permission of the Art Department.

**ARTT428 Advanced Painting Studio (3 Credits)**
Multi-level painting studio emphasizing advanced concepts and processes related to oil and acrylic painting; emphasis on contemporary art issues and individual directions in chosen media.
**Prerequisite:** ARTT320.
**Repeatable to:** 12 credits.

**ARTT438 Advanced Sculpture Studio (3 Credits)**
Multi-level sculpture studio; continuation of media-specific sculpture courses with emphasis on contemporary art issues and individual directions in chosen media.
**Prerequisite:** Must have completed one 300-level sculpture course; or permission of ARHU-Art department.
**Repeatable to:** 12 credits.

**ARTT448 Advanced Printmaking Studio (3 Credits)**
Multi-level printmaking studio; continuation of media-specific printmaking courses with emphasis on contemporary art issues and individual directions in chosen media.
**Prerequisite:** Must have one 300-level printmaking course; or permission of ARHU-Art department.
**Repeatable to:** 12 credits.

**ARTT449 Advanced Photography Studio (3 Credits)**
Advanced photographic processes and theory. Emphasis on contemporary art issues and individual directions.
**Prerequisite:** ARTT353; or permission of ARHU-Art department.
**Repeatable to:** 12 credits if content differs.

**ARTT454 Advanced Graphic Design Principles: Design in Society (3 Credits)**
Focus on social responsibility and community activism. History and theory of propaganda and advocacy-based design. Students explore current design practices, work individually, and collaborate in teams with non-profits or other clients with community-based or socio-cultural agendas. Research and writing-intensive course.
**Prerequisite:** ARTT355 and ARTT356.

**ARTT455 Three Dimensional Graphic Design (3 Credits)**
Continued exploration of advanced graphic design practices with primary emphasis on 3-D object and packaging design. Includes research, course reading discussion, oral presentations, and specific project assignments which will require a proficient level of hand-skills (craft) and computer skills.
**Prerequisite:** ARTT355, ARTT356, and ARTT357.
**Recommended:** ARTT333.
**Credit Only Granted for:** ARTT352 or ARTT455.
**Formerly:** ARTT352.

**ARTT456 Motion Design (3 Credits)**
Explores computer graphics and visual communication principles in a time-based context. Examination of fundamental design principles through digital projects that involve photo manipulation, digital illustration, layout, animation, and web design.
**Prerequisite:** ARTT355, ARTT356, and ARTT357; or permission of ARHU-Art department.

**ARTT457 Advanced Interactive Design (3 Credits)**
Advanced concepts and techniques of interactive design and interactive software. Examination of corporate, client-based, and public service-based interactive graphic design. Emphasis on web-based interactive design structures.
**Prerequisite:** ARTT357.

**ARTT458 Graphic Design Portfolio (3 Credits)**
Creation of a comprehensive professional portfolio. Curriculum includes portfolio preparation and presentation, contracts, copyright issues, interviewing skills, resume and cover-letter writing, design briefs and proposals, and freelance business issues. Portfolio presentation includes basics of book arts.
**Prerequisite:** ARTT454.
**Repeatable to:** 9 credits if content differs.

**ARTT459 Advanced Graphic Design Studio (3 Credits)**
Student-run design firm working with non-profits and other organizations. Organizations act as clients; the students as a creative firm. Under guidance and supervision of faculty, students learn first-hand about working with clients, working within a budget, working with printers and press runs, and working under real deadlines.
**Prerequisite:** ARTT454; or permission of ARHU-Art department.
**Repeatable to:** 9 credits if content differs.

**ARTT460 Seminar in Art Theory (3 Credits)**
Exploration of relationship between content and processes of art in a contemporary multi-cultural context.
**Restriction:** Senior standing.

**ARTT468 Seminar on the Interrelationship Between Art and Art Theory (3 Credits)**
The relationship between a student's work and the theoretical context of contemporary art.
**Restriction:** Junior standing or higher; or permission of ARHU-Art department.
**Repeatable to:** 6 credits if content differs.

**ARTT469 Professional Practice (3 Credits)**
Business aspects of being an artist, with an emphasis on starting and maintaining a professional career.
**Restriction:** Senior standing; or permission of ARHU-Art department.
**Repeatable to:** 6 credits if content differs.
**Formerly:** ARTT462.

**ARTT479 Advanced Digital Media Studio (3 Credits)**
Variable multi-level studio emphasizing advanced concepts and processes related to time-based, projection, installation, interactive, and audio/visual integrated digital art. Emphasis on contemporary art issues and individual directions.
**Prerequisite:** ARTT370; or permission of ARHU-Art department.
**Repeatable to:** 12 credits if content differs.

**ARTT481 Advanced Specialization Seminar (3 Credits)**
Seminar combines contemporary art theory, criticism, professional practice and career preparation in relation to students works from all areas of specialization.
**Prerequisite:** Permission of ARHU-Art department.

**ARTT487 Capstone for Citation in Interdisciplinary Multimedia and Technology (1 Credit)**
Independent study: a paper or website synthesizing the various citation learning experiences.
**Prerequisite:** Permission of ARHU-Art department.

**ARTT488 Advanced Special Topics in Graphic Design (1-3 Credits)**
Variable topics in Graphic Design theory and practice.
**Prerequisite:** Permission of ARHU-Art department.
**Repeatable to:** 6 credits if content differs.

**ARTT489 Advanced Special Topics in Art (1-3 Credits)**
Advanced studio art and theory within the context of a special topic.
**Prerequisite:** Permission of ARHU-Art department.
**Repeatable to:** 12 credits if content differs.

**ARTT498 Directed Studies in Studio Art (1-3 Credits)**
Advanced independent work in Studio Art. Meeting with faculty and studio time arranged.
**Prerequisite:** Permission of ARHU-Art department.
**Repeatable to:** 12 credits if content differs.

**ARTT499 Directed Studies in Graphic Design (1-3 Credits)**
Advanced independent studies in Graphic Design. Meetings with faculty and studio time arranged.
**Prerequisite:** Permission of ARHU-Art department.
**Repeatable to:** 12 credits if content differs.

# ARTX - Art Studio Education Abroad

**ARTX201 Historic Artistic Techniques (1 Credit)**
This intensive one-credit course introduces students to the materials and techniques of the past through a practical workshop. The course also introduces the history of the ancient technique, with examples from Rome and the Mediterranean world. Techniques for the conservation and restoration of mosaics will also be covered through relevant case-studies.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ARTX202 The Making of Art: History of Art Material (3 Credits)**
Introduces students to the history of artistic media through practical examples, focusing on the history of painting, sculpture, prints, and drawings as media. Practical classes will take place in the studio and on-site in museums and churches in Rome and in the classroom.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ARTX203 Photo Documentary and Discovery (3 Credits)**
In this course, you learn to research and tell your individual story through photography. Utilizing workshops and excursions outside the classroom, you develop the skills to dive into different cultures and use your camera as a medium for understanding a community and telling your story through photographs.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**ARTX204 Ways of Seeing: Storytelling Through Photography (3 Credits)**
This class is an effort to make sense of your study abroad stay: rather than creating photographs as mementos, you will make pictures that are unique to your stay in Stockholm, but still refer back to your life in general. This class combines a studio critique and a survey of the history and theory of photography.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**ARTX301 Painting Workshop (3 Credits)**
This is an advanced course in painting techniques, which may include other media, such as photography and printmaking as research aids. Students will further develop and explore personal concepts in the painting medium to produce a coherent body of work.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ARTX302 Printmaking Workshop (3 Credits)**
This is an advanced course in printmaking techniques. Students will further develop and explore personal concepts in the printmaking medium to produce a coherent body of work.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

# ARUX - Arts and Humanities Education Abroad

**ARUX301 Tour Guiding & Multicultural Competence (Community Engagement Practicum) (3 Credits)**
Develops student competencies in mediating between cultures and professional tour guiding through working as tour guides in one of the main churches in Florence. Students attend a seminar alongside their tour guiding to promote their understanding of the cultural and religious importance of the main Florentine churches and the fundamental importance of these monuments for Italian national identity and Florentine local identity.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

**ARUX302 Global Internship Course (3 Credits)**
Engages students in an internship and living abroad experience and supports them through academic mentoring and on-line sessions to further develop their personal and professional skills as they earn academic credit. Students participate in a variety of out-of-class guided and self-guided activities and excursions, and move through the course's three main themes of Personal and Professional Development, Intercultural Competence, and Comparative Analysis of their host location in relation to the USA.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

# ASTR - Astronomy

**ASTR100 Introduction to Astronomy (3 Credits)**
An elementary course in descriptive astronomy, especially appropriate for non-science students. Topics include the Sun, Moon, planets, stars, and nebulae, galaxies, and evolution of the Universe.
**Credit Only Granted for:** ASTR100, ASTR101, or ASTR120.

**ASTR101 General Astronomy (4 Credits)**
Descriptive astronomy, appropriate for non-science majors. Sun, moon, planets, stars, nebulae, galaxies and evolution. Laboratory exercises include use of photographic material, computer simulations, and standard laboratory equipment.
**Credit Only Granted for:** ASTR100, ASTR101, or ASTR120.

**ASTR120 Introductory Astrophysics - Solar System (3 Credits)**
For students majoring in astronomy or with a strong interest in science. Topics include development of astronomy, planetary orbits, electromagnetic radiation, telescopes as well as constituents and origin of the solar system (planets, satellites, comets, asteroids, meteoroids, etc.).
**Prerequisite:** Must have completed or be concurrently enrolled in MATH140.
**Restriction:** Must not have completed ASTR101 or ASTR100.
**Credit Only Granted for:** ASTR100, ASTR101, or ASTR120.

**ASTR121 Introductory Astrophysics II - Stars and Beyond (4 Credits)**
For students majoring in astronomy or with a strong interest in science. Includes instrumentation, stellar properties, stellar evolution, structure of the galaxy, other galaxies, large scale structure, Big Bang Theory, and future of the universe.
**Prerequisite:** ASTR120 and MATH140; or permission of CMNS-Astronomy department.
**Restriction:** Must be in Astronomy program; or permission of CMNS-Astronomy department.

**ASTR220 Collisions in Space - The Threat of Asteroid Impacts (3 Credits)**
Should we defend our planet against potential asteroid impacts? Collisions in Space will evaluate the threat of asteroid impacts with the Earth using knowledge of asteroid characteristics and orbits. The merits of possible defense plans will be discussed, as well as the budgetary and political concerns associated with implementing any such plan. Appropriate for non-science majors.
**Restriction:** Must not be in the Astronomy major.

**ASTR230 The Science and Fiction of Planetary Systems (3 Credits)**
Have you ever wondered if humans will ever terraform Mars or Europa so we could live there without a spacesuit? Has it ever crossed your mind how lucky you are that you live on a water-rich planet with an oxygen-rich atmosphere? Have you ever suspected novelists and scriptwriters of creating ridiculous planets that violate scientific laws? Does the fate of our planet's thin biosphere keep you up at night? How common is life in the Universe? These are difficult questions, but armed with the right information, you can answer all of them. The Science and Fiction of Planetary Systems will help you develop a deeper understanding of why planets are the way they are. Along the way, you'll see examples of mistakes made in classic science fiction movies, novels and short stories and get the chance to invent your own plausible planets!
**Prerequisite:** Must have math eligibility of MATH115 or higher; or MATH113.

**ASTR288 Special Projects in Astronomy (1-3 Credits)**
Independent study, short research projects, tutorial reading, and assisting with faculty research and teaching under special supervision.
**Prerequisite:** Permission of CMNS-Astronomy department.
**Repeatable to:** 6 credits.

**ASTR300 Stars and Stellar Systems (3 Credits)**
Designed primarily for non-science majors. Study of stars-types, properties, evolution, and distribution in space; supernovae, pulsars, and black holes.
**Prerequisite:** ASTR100 or ASTR101; and completion of the CORE Distributive Studies requirement in Mathematics and Sciences or General Education Fundamental Studies requirement in Mathematics. Or permission of CMNS-Astronomy department.

**ASTR310 Observational Astronomy (4 Credits)**
Introduction to current optical observational techniques, with brief coverage of infrared, ultraviolet, and x-ray techniques. Statistics, spherical trigonometry time, catalogs, geometrical and physical optics, telescopes, and optical instruments. Effects of the atmosphere. Practical work at the observatory using a CCD camera. Some nighttime observing sessions.
**Prerequisite:** ASTR121; and (PHYS171 or PHYS161). Or permission of CMNS-Astronomy department.
**Restriction:** Must be in Astronomy program.

**ASTR315 Astronomy in Practice (4 Credits)**
Students learn astronomy research techniques and contribute significantly to the existing body of astronomical knowledge. Students apply methods and tools such as celestial coordinates, telescopes and CCD cameras, and appropriate analysis software to a specific observational goal. Students produce a work detailing their scientific result which will be submitted for publication in a professional venue. Each semester, the course focuses on a specific astronomical topic or type of object, such as asteroids, extrasolar planets, supernovae in other galaxies, quasars, etc.
**Restriction:** Must not be in Astronomy program.
**Additional Information:** Appropriate for non-science majors.

**ASTR320 Theoretical Astrophysics (3 Credits)**
Application of selected physics concepts in an astrophysical context. Topics would include gravity (Keplerian motion, Virial theorem, Roche limit, dynamical friction); gas dynamics (hydrostatic equilibrium, stellar models, spiral density waves), thermodynamics and statistical physics (Boltzmann distribution, Wien displacement, convective instability, degenerate gas); atomic physics (quantum principles, H atom, permitted and forbidden lines); radiation processes (line radiation, opacity).
**Prerequisite:** ASTR121; and (PHYS270 and PHYS271; or PHYS273).
**Restriction:** Must be in Astronomy program.

**ASTR330 Solar System Astronomy (3 Credits)**
Designed primarily for non-science majors. The structure of planets and of their atmospheres, the nature of comets, asteroids, and satellites. Comparison of various theories for the origin of the solar system. Emphasis on a description of recent data and interpretation.
**Prerequisite:** ASTR100 or ASTR101; and completion of the CORE Distributive Studies requirement in Mathematics and Sciences or the General Education Fundamental Studies requirement in Mathematics. Or permission of CMNS-Astronomy department.
**Credit Only Granted for:** ASTR330 or GEOL212.

**ASTR340 Origin of the Universe (3 Credits)**
Designed primarily for non-science majors. A study of our progression of knowledge about the universe. Topics include: early cosmological models, geocentric vs. heliocentric theory, curvature of space, Hubble's Law, Big Bang Theory, microwave background radiation, evolution of stars and galaxies, dark matter, active galaxies, quasars and the future of the universe.
**Prerequisite:** ASTR100 or ASTR101; and completion of the CORE Distributive Studies requirement in Mathematics and Sciences or General Education Fundamental Studies requirement in Mathematics. Or permission of CMNS-Astronomy department.

**ASTR350 Black Holes (3 Credits)**
Black holes are the most exotic prediction of Einstein's Theory of General Relativity and, amazingly, the Universe seems to manufacture these bizarre objects in copious numbers. As well as being the ultimate laboratory for studying the nature of space and time, they drive some of the most energetic and extreme phenomena known to astronomers (with quasars and gamma-ray bursts being just a couple of examples). In this introduction to the physics and astrophysics of black holes, we start by examining the basic physics of black holes, which fundamentally means understanding gravity. We then look at the nature of stellar-mass black holes and supermassive black holes. We will discuss the fairly recent realization that black holes may be crucial agents for regulating the growth of galaxies. Finally, we dive into the realm of theoretical physics and probe how black holes may provide a route for uncovering new laws of physics governing the structure of space and time.
**Prerequisite:** ASTR100 or ASTR101; and completion of the CORE Distributive Studies requirement in Mathematics and Sciences or General Education Fundamental Studies requirement in Mathematics. Or permission of CMNS-Astronomy department.
**Credit Only Granted for:** ASTR398B or ASTR350.
**Formerly:** ASTR398B.

**ASTR380 Life in the Universe - Astrobiology (3 Credits)**
Designed primarily for non-science majors. Study of the astronomical perspective on the conditions for the origin and existence of life in the universe.

**ASTR386 Experiential Learning (1-3 Credits)**
**Restriction:** Junior standing or higher; and permission of CMNS-Astronomy department.

**ASTR398 Special Topics in Astronomy (3 Credits)**
This course is designed primarily for students not majoring in astronomy and is suitable for nonscience students. It will concentrate study in some limited field in astronomy which will vary from semester to semester. Possible subjects for study are the solar system, extragalactic astronomy and cosmology, the inconstant universe.
**Restriction:** Junior standing or higher; or permission of CMNS-Astronomy department.
**Repeatable to:** 6 credits if content differs.

**ASTR399 Honors Seminar (1-16 Credits)**
Credit according to work done.
**Restriction:** Must be admitted to the departmental honors program in astronomy.

**ASTR406 Stellar Structure and Evolution (3 Credits)**
Study of stellar internal structure, nuclear reactions, and energy transport. Study of stellar evolution of both low-mass and high-mass stars, including the stellar end states of white dwarfs, neutron stars, and black holes.
**Prerequisite:** ASTR320; or permission of CMNS-Astronomy department.
**Credit Only Granted for:** ASTR498N or ASTR406.
**Formerly:** ASTR498N.

**ASTR410 Radio Astronomy (3 Credits)**
Introduction to current observational techniques in radio astronomy. The radio sky, radiophysics, coordinates and catalogs, antenna theory, Fourier transforms, interferometry and arrays, aperture synthesis, and radio detectors.
**Prerequisite:** ASTR121; and (PHYS271 and PHYS270; or PHYS273). Or permission of CMNS-Astronomy department.

**ASTR415 Computational Astrophysics (3 Credits)**
Introduction to the most important computational techniques being used in research in astrophysics. Topics include modern high performance computer architectures, scientific visualization and data analysis, and detailed descriptions of numerical algorithms for the solution to a wide range of mathematical systems important in astrophysics.
**Prerequisite:** ASTR121; and (PHYS271 and PHYS270; or PHYS273). Or permission of CMNS-Astronomy department. Jointly offered with ASTR615.
**Credit Only Granted for:** ASTR415 or ASTR615.

**ASTR421 Galaxies (3 Credits)**
Introduction to structure, kinematics, and dynamics of normal and peculiar galaxies. Quantitative descriptions of normal spiral galaxies (like our Milky Way) and elliptical galaxies will be followed by more exotic considerations such as interacting and merging galaxies, and active galactic nuclei.
**Prerequisite:** ASTR121; and (PHYS271 and PHYS270; or PHYS273). Or permission of CMNS-Astronomy department.

**ASTR422 Cosmology (3 Credits)**
Introduction to modern cosmology. Topics include large scale structure of universe, the intergalactic medium, the nature of dark matter cosmological models and galaxy formation.
**Prerequisite:** Must have completed or be concurrently enrolled in ASTR320; or permission of CMNS-Astronomy department.

**ASTR430 The Solar System (3 Credits)**
Formation and evolution of the Solar System. Planetary surfaces, interiors, atmospheres, and magnetospheres. Asteroids, comets, planetary satellites, and ring systems. Emphasis on using basic physics to understand observed properties of the Solar System. Intended for students majoring in the physical sciences.
**Prerequisite:** ASTR121; and (PHYS271 and PHYS270; or PHYS273). Or permission of CMNS-Astronomy department.

**ASTR435 Astrophysics of Exoplanets (3 Credits)**
Introduction to exoplanets. Topics include historical development, advantages, and limitations of detection methods, the statistics of exoplanet characteristics, the bulk properties of known expolanets, and remote sensing for characterization of exoplanets.
**Prerequisite:** ASTR121; and (PHYS273; or (PHYS270 and PHYS271)). Or permission of CMNS-Astronomy department.
**Credit Only Granted for:** ASTR498X or ASTR435.
**Formerly:** ASTR498X.

**ASTR450 Orbital Dynamics (3 Credits)**
Vectorial mechanics, motion in a central force field, gravitational and non-gravitational forces, the two-body and three-body problems, orbital elements and orbital perturbation theory, resonances in the solar system, chaos. Intended for students majoring in any of the physical sciences.
**Prerequisite:** Must have completed or be concurrently enrolled in ASTR320; or permission of CMNS-Astronomy department.

**ASTR480 High Energy Astrophysics (3 Credits)**
The structure, formation, and astrophysics of compact objects, such as white dwarfs, neutron stars, and black holes, are examined. Phenomena such as supernovae and high-energy particles are also covered.
**Prerequisite:** Must have completed or be concurrently enrolled in ASTR320; or permission of CMNS-Astronomy department.

**ASTR498 Special Problems in Astronomy (1-6 Credits)**
Research or special study. Credit according to work done.
**Restriction:** Must be in one of the following programs (Physics; Astronomy) ; and permission of CMNS-Astronomy department.

# BCHM - Biochemistry

**BCHM386 Experiential Learning (3-6 Credits)**
**Restriction:** Junior standing or higher; and must have a learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.

**BCHM461 Biochemistry I (3 Credits)**
First semester of a comprehensive introduction to modern biochemistry. Structure, chemical properties, and function of proteins and enzymes, carbohydrates, lipids, and nucleic acids. Basic enzyme kinetics and catalytic mechanisms.
**Prerequisite:** Minimum grade of C- in CHEM271 and CHEM272; or minimum grade of C- in CHEM276 and CHEM277.
**Credit Only Granted for:** BCHM461 or BCHM463.

**BCHM462 Biochemistry II (3 Credits)**
A continuation of BCHM 461. Metabolic pathways and metabolic regulation, energy transduction in biological systems, enzyme catalytic mechanisms.
**Prerequisite:** Minimum grade of C- in BCHM461.
**Credit Only Granted for:** BCHM462 or BCHM463.

**BCHM463 Biochemistry of Physiology (3 Credits)**
A one-semester introduction to general biochemistry. A study of protein structure, enzyme catalysis, metabolism, and metabolic regulation with respect to their relationship to physiology.
**Prerequisite:** Minimum grade of C- in CHEM271 and CHEM272; or minimum grade of C- in CHEM276 and CHEM277.
**Credit Only Granted for:** BCHM461, BCHM462 or BCHM463.

**BCHM464 Biochemistry Laboratory (3 Credits)**
Biochemical and genetic methods for studying protein function. Site-directed mutagenesis and molecular cloning, protein purification, enzyme activity assays, computer modeling of protein structure.
**Prerequisite:** BCHM461 or BCHM463; and a grade of C- or better in the prerequisite is required for all College of Computer, Mathematical, and Natural Sciences majors and recommended for all students.
**Corequisite:** BCHM465.
**Restriction:** BCHM, CHEM, and Nutritional Sciences majors have first priority, followed by other life science majors.

**BCHM465 Biochemistry III (3 Credits)**
CORE Capstone (CS) Course. An advanced course in biochemistry. Biochemical approach to cellular information processing. DNA and RNA structure. DNA replication, transcription, and repair. Translation of mRNA to make proteins.
**Prerequisite:** BCHM461 or BCHM463; and a grade of C- or better in the prerequisite is required for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students.
**Recommended:** BCHM462.

**BCHM477 Biomolecular Measurement and Data Analysis (3 Credits)**
Covers a range of classic and modern biochemical assays and techniques as well as introducing data science approaches to "omics" data. Upon successful completion of this course, students should have the necessary preparation and experience to collaborate productively with research scientists in industrial, clinical or academic contexts.
**Prerequisite:** CHEM271 or CHEM276; and (CHEM277 or CHEM272).
**Restriction:** Must be in the Chemistry or Biochemistry major.

**BCHM485 Physical Biochemistry (3 Credits)**
Physical Chemistry with applications to biological systems. Principal topics: quantum chemistry, spectroscopy, structural methods for biological macromolecules, statistical thermodynamics, transport processes in liquid phase, chemical and biochemical kinetics, modeling and simulation, polymer dynamics.
**Prerequisite:** Minimum grade of C- in CHEM481.
**Restriction:** Must be in Biochemistry program; or permission of instructor.
**Credit Only Granted for:** CHEM482 or BCHM485.

# BIOE - Bioengineering

**BIOE120 Biology for Engineers (3 Credits)**
Introduction to the functions and interactions of biological systems from a quantitative perspective. Introduction to the modern experimental techniques and methods of data analysis. Roles for bioengineers in biology, and the role of biology in bioengineering will be elucidated.
**Prerequisite:** Must have completed or be concurrently enrolled in MATH140.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.

**BIOE121 Biology for Engineers Laboratory (1 Credit)**
Bioengineering encompasses numerous sub-disciplines that apply engineering principles to analyze biological systems and that utilize engineering design strategies to solve biological and biomedical problems. This course is aimed at providing students with the opportunity to learn how biology and engineering can synergistically contribute to our understanding of such problems, and to gain hands-on experience in basic techniques relevant to Bioengineering.
**Prerequisite:** Must have completed or be concurrently enrolled in BIOE120.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.

**BIOE221 Academic and Career Planning (1 Credit)**
Provides practical tools to help Bioengineering majors think critically about their goals and career paths. Guides Bioengineering students through accessing useful resources both on- and off-campus.
**Prerequisite:** BIOE120 and BIOE121.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.

**BIOE232 Bioengineering Thermodynamics (3 Credits)**
A quantitative introduction to thermodynamic analysis of bioengineering systems. Bioengineering encompasses a wide range of applications from nanoscale interactions (e.g. reactions between molecules), to cellular interactions (e.g. membrane electrical currents), to overall balances on organisms, all the way to large scale manufacturing. Each of these applications (and many others not mentioned) involve energy interactions which is the domain of thermodynamics. The basic laws of thermodynamics will be introduced and explained through a series of examples related to bioengineering systems.
**Prerequisite:** PHYS261 and PHYS260.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE232, ENES232, ENME232, or ENME320.

**BIOE241 Biocomputational Methods (3 Credits)**
Application of computer technology to biological and natural resource systems considering engineering aspects. Designed to help students in the use of computer technology for problem solving. The course will cover 4-5 software packages important for later use by the student.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.

**BIOE246 Differential Equations for Bioengineering (3 Credits)**
Students will learn to solve differential equations, including linear first order differential equations, higher order differential equations, and partial differential equations. In addition, students will learn to apply differential equations to concepts in bioengineering.
**Prerequisite:** Minimum grade of C- in MATH243 .
**Restriction:** Must be in Engineering: Bioengineering program or permission of the Fischell Department of Bioengineering.

**BIOE331 Biofluids (3 Credits)**
Principles and applications of fluid mechanics with a focus on bioengineering topics. Content includes conservation of mass, momentum, and energy, as well as the application of these fundamental relations to hydrostatics, control volume analysis, internal and external flow, and boundary layers. Applications to biological and bioengineering problems such as tissue engineering, bioprocessing, imaging, and drug delivery.
**Prerequisite:** MATH246, BIOE120, BIOE121, BIOE241, and BIOE371; and must have completed or be concurrently enrolled in BIOE232.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE331, ENCE305, ENFP300 or ENME331.

**BIOE332 Transport Process Design (3 Credits)**
Fluid flow, heat transfer, and mass transfer with applications in medicine, environment, biotechnology, food, agriculture, and other biosystems. Design of solutions to current problems in biological engineering is emphasized.
**Prerequisite:** BIOE331.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.

**BIOE340 Modeling Physiological Systems and Lab (4 Credits)**
Topics covered will include cell and general physiology, membrane physiology, blood cells and clotting, circulation, metabolism, respiration, and the nervous system. A lab component will also be included.
**Prerequisite:** BSCI330, BIOE120, BIOE121, BIOE241, and MATH246.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE340 or (BSCI440 and BSCI441).

**BIOE371 Linear Systems and Ordinary Differential Equations for Bioengineering Applications (3 Credits)**
This class utilizes fundamentals in linear systems, including eigenvalues and eigenvectors, as well as linear differential equations, to study various problems in bioengineering and biological systems, with a particular emphasis on feedback, stability, controllability, and control design.
**Prerequisite:** BIOE241; and must have completed or be concurrently enrolled in MATH246.
**Restriction:** Permission on ENGR-Fischell Department of Bioengineering department.

**BIOE372 Biostatistics for Experimental Design and Data Analysis (3 Credits)**
This course will instruct students in the fundamentals of probability and statistics through examples in biological phenomenon, the design of bioengineering experiments, and clinical data analysis. Fundamentals covered in the course include probability distributions, hypothesis testing, power analysis, regression analysis, and correlation analysis.
**Prerequisite:** BIOE120, BIOE121, and BIOE241.
**Recommended:** MATH246.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE372 or STAT464.

**BIOE386 Bioengineering Design and Teamwork (3 Credits)**
Focuses on the engineering design process, including needs finding, problem definition, inclusive design, and prototyping. Students will join an existing senior capstone design team and contribute to the project. This elective is designed to be taken directly prior to BIOE485, and will collaborate with the students and projects in that course. Students who complete BIOE386 may have the option to continue their capstone project in BIOE485.
**Prerequisite:** Minimum grade of C- in BIOE120, BIOE121, BIOE241, and MATH246.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department and must have earned a minimum of 60 credits.

**BIOE389 Special Projects in Bioengineering (1-3 Credits)**
Exploring a variety of projects in Bioengineering.
**Restriction:** Permission of instructor; and permission of ENGR-Fischell Department of Bioengineering department.
**Repeatable to:** 6 credits.

**BIOE399 Independent Study in Bioengineering (1-3 Credits)**
Independent study.
**Prerequisite:** Permission of ENGR-Fischell Department of Bioengineering department.
**Repeatable to:** 12 credits if content differs.

**BIOE404 Biomechanics (3 Credits)**
Introduction to the fundamentals of biomechanics including force analysis, mechanics of deformable bodies, stress and strain, multiaxial deformations, stress analysis, and viscoelasticity. Biomechanics of soft and hard tissues.
**Prerequisite:** MATH246, BIOE120, ENES102, BIOE121, and BIOE241; and must have completed or be concurrently enrolled in BIOE371.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.

**BIOE411 Tissue Engineering (3 Credits)**
A review of the fundamental principles involved in the design of engineered tissues and organs. Both biological and engineering fundamentals will be considered.
**Prerequisite:** Must have completed at least one biology course; and (BIOE120, BIOE121, BIOE241, MATH246, and MATH241). Or permission of ENGR-Fischell Department of Bioengineering department.
**Recommended:** BSCI330 and BIOE340.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE411 or CHBE487.

**BIOE413 Stem Cell Engineering (3 Credits)**
Provides an introduction to the role of stem cells in tissue growth and development, the engineering of stem cells and their environments for regenerative medicine applications, and disease modeling. Topics covered will include basic stem cell biology and mechanobiology; experimental methods for growing, differentiating, studying, and characterizing stem cells; stem cell integration into engineered microenvironments (e.g., tissue scaffolds and biomaterials, organ-on-chip devices, 3D-printed biomaterials); stem cell engineering in clinical applications and disease models; and ethical, commercialization, and regulatory issues in the field of stem cell engineering.
**Prerequisite:** BIOE241, BIOE120, BIOE121, and MATH246; and must have completed or be concurrently enrolled in BIOE340.
**Jointly offered with:** BIOE613.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE413, BIOE689J, or BIOE613.

**BIOE414 Macroscale Biomechanics (3 Credits)**
An overview of current problems in movement biomechanics. After taking this course, students will be able to 1) Describe the engineering tools needed to study human movement 2) Recognize a variety of clinical research and practice, and 3) Use the framework provided by the course to pursue their own self-teaching and research on these topics. Topics covered include muscle mechanics, joint mechanics, EMG and EEG signal applications, ultrasonography and elastography, anthropometry, human movement 3-D kinematics, inverse dynamics, forward dynamics, work, power and energy. Biomechanics tools will be used to investigate clinical problems. Students will also do research projects on related topics.
**Prerequisite:** BIOE120, BIOE121, BIOE241, MATH246, and ENES102.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE414 or BIOE489Z.
**Formerly:** BIOE489Z.

**BIOE415 Engineering Design for Global Health (3 Credits)**
Many medical technologies are not available in low and middle-income countries due to the cost, infrastructure, and medical expertise required to implement and sustain them. There is tremendous potential to increase access to health care through developing more affordable biomedical technologies, but effective design requires deep understanding of the problem. The goal of this course is to introduce the human-centered design framework and how it can be applied to design new biomedical technologies to solve challenges in global health.
**Prerequisite:** BIOE120, BIOE121, and MATH246.
**Jointly offered with:** BIOE615.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE415, BIOE615, BIOE489Y, or BIOE689I.
**Formerly:** BIOE489Y.

**BIOE416 Cardiovascular Engineering (3 Credits)**
An overview of engineering applications in the cardiovascular system. Covers cardiovascular anatomy, physiology and pathophysiology in the context of cell and tissue mechanics, fluid mechanics, thermodynamics, biotransport, neurovascular coupling, and imaging. Includes design of cardiovascular devices, sensors, biomaterials, and tissue engineered constructs.
**Prerequisite:** BIOE331 and BIOE340.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE416 or BIOE489V.
**Formerly:** BIOE489V.

**BIOE420 Bioimaging (3 Credits)**
Examines the physical principles behind major biomedical imaging modalities and new ways of using images for bio-related applications.
**Prerequisite:** MATH246, BIOE120, BIOE121, and BIOE241.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.

**BIOE431 Fundamentals of Biosensor Techniques, Instrumentation, and Applications (3 Credits)**
A thorough review of fundamental concepts of biosensing systems, principles of common detection methods, and modern applications of biosensors. Primarily literature driven. Students will obtain a detailed understanding of cutting-edge biosensing techniques, the instrumentation used, and the application space. Students also will develop skills in using current literature as a source of knowledge.
**Prerequisite:** CHEM135, PHYS260, PHYS261, BSCI330, BIOE120, BIOE121, BIOE241, and MATH246; or permission of ENGR-Fischell Department of Bioengineering department.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.

**BIOE433 Optical Microscopy (3 Credits)**
Includes a large variety of techniques central in many fields of biological and engineering research as well as clinical medicine. This course will provide a comprehensive overview of the fundamentals of optical microscopy. At a fundamental level, the course will cover the interaction of light with tissue, cells and biomaterials, and the mathematical foundations that describe optical systems.
**Prerequisite:** BIOE120, BIOE121, BIOE241, BIOE371, and MATH246.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE489I or BIOE433.
**Formerly:** BIOE489I.

**BIOE437 Computer-Aided Design in Bioengineering (3 Credits)**
Introduction to Computer-Aided Design (CAD). Lecture topics will summarize design methodology, review best-practices in hardware development, and discuss engineering applications. The course will culminate in a student-selected project leveraging CAD.
**Prerequisite:** BIOE120, BIOE121, BIOE241, and MATH246; or permission of ENGR-Fischell Department of Bioengineering department.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE437, BIOE689V, ENME414, ENME272, or ENAE488D.
**Formerly:** BIOE689V.

**BIOE442 Python: Introduction to Programming and Data Analysis (3 Credits)**
Provides an introduction to structured programming, computational methods, and data analysis techniques with the goal of building a foundation allowing students to confidently address problems in research and industry. Fundamentals of programming, algorithms, and simulation are covered from a general computer science perspective, while the applied data analysis and visualization portion makes use of the Python SciPy stack.
**Prerequisite:** BIOE241, BIOE120, BIOE121, and MATH241; or permission of ENGR-Fischell Department of Bioengineering department.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE489A or BIOE442.
**Formerly:** BIOE489A.

**BIOE447 Clinical Experiences in Bioengineering (3 Credits)**
An immersion experience in the clinical settings in which biomedical engineering strategies, technologies, and practices are applied. An emphasis will be placed on both clinical problems and engineering solutions.
**Prerequisite:** BIOE221.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE489O or BIOE447.
**Formerly:** BIOE489O.

**BIOE453 Biomaterials (3 Credits)**
Examination of the structure and function of natural biomaterials, and cell-extracellular matrix interactions. Study physical properties of synthetic biomaterials for biomedical applications. Understanding molecular level interactions between biomolecules and biomaterials to design novel biomaterials with desirable characteristics. Application of biomaterials as implants, drug delivery systems, biosensors, engineered materials such as artificial skin and bone growth scaffolds will be covered.
**Prerequisite:** CHEM231, MATH246, CHEM232, BIOE120, BIOE121, and BIOE241.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE453, CHBE457, or ENMA425.

**BIOE457 Biomedical Electronics & Instrumentation (4 Credits)**
Students learn fundamental concepts of electronics, assembly of electronic components into functional circuits, and integration of functional electronic devices and circuits into a system. In the lab component, students will learn to assemble and evaluate circuits and systems.
**Prerequisite:** BIOE120, BIOE121, BIOE241, PHYS261, MATH246, and PHYS260.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.

**BIOE461 Synthetic Biology and Biological Engineering (3 Credits)**
Students are introduce to the scientific foundation and concepts of synthetic biology and biological engineering. Current examples that apply synthetic biology to fundamental and practical challenges will be emphasized. The course will also address the societal issues of synthetic biology, and briefly examine interests to regulate research in this area.
**Prerequisite:** BIOE120, BIOE121, BIOE241, and MATH246; or permission of ENGR-Fischell Department of Bioengineering department.
**Recommended:** Completion of BSCI222 and/or BSCI330 recommended.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.

**BIOE462 Therapeutic Development and Delivery (3 Credits)**
The ultimate purpose of the pharmaceutical and biotechnology industries is the development and delivery of therapeutics. This course covers fundamentals of engineering and the pharmaceutical sciences related to therapeutics, including basic pharmaceutics/drug delivery, pharmacokinetics, biomolecular kinetics, and regulatory issues. Specific focus is placed on biotherapeutics, including antibodies and protein engineering,RNA and DNA therapeutics (gene therapy and RNAi), extracellular vesicle biotechnology (exosomes), and cell-based therapies, including stem cells. The use of delivery technologies to enable therapeutics (e.g. nanomedicine) will also be discussed.
**Prerequisite:** BIOE120, BIOE121, BIOE241, MATH246, and BSCI330; and must have completed or be concurrently enrolled in BIOE340.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE489P or BIOE462.
**Formerly:** BIOE489P.

**BIOE464 Introduction to Computational Molecular Bioengineering (3 Credits)**
Designed to introduce students to the principles, methods, and software used for simulation and modeling of macromolecules of biological interest such as proteins, lipids, and polysaccharides. Along with experiment and theory, computational modeling provides new tools for analysis, explanation and prediction. The course is also useful for students who plan to use experimental techniques as their primary approach, but who will employ computational modeling as a tool to obtain integrative understanding of complex systems. Finally, the course should be valuable as an introductory overview for students planning to conduct their thesis research in computational modeling of biological systems. Class topics: Basic statistical thermodynamics, Force fields, Molecular dynamics/ monte carlo methods, Conformational analysis, Fluctuations & transport properties, Free-energy calculations, Multiscale modeling.
**Prerequisite:** BIOE120, BIOE241, MATH246, BIOE232, and BIOE372; or permission of ENGR-Fischell Department of Bioengineering department.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE489N or BIOE464.
**Formerly:** BIOE489N.

**BIOE468 Selected Topics in Bioengineering (3 Credits)**
Selected topics in Bioengineering will be covered and taught by a variety of department faculty.
**Prerequisite:** BIOE120 and BIOE121.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Repeatable to:** 9 credits if content differs.

**BIOE474 Biopharmaceutical Process Development and Manufacturing (3 Credits)**
Covers the fundamental steps involved in process development and manufacturing of biopharmaceuticals. An overview of different classes of biopharmaceuticals as well as manufacturing requirements for clinical development and regulatory approval will be provided. In depth coverage of manufacturing steps including cell culture, purification and formulation as well as drug product manufacturing, analysis and stability will be covered. Scientific literature will be used to highlight current challenges and novel solutions in each step of the manufacturing process. Scale up considerations, GMP requirements and process economics will also be introduced.
**Prerequisite:** BIOE120.
**Jointly offered with:** BIOE674.
**Restriction:** Must have earned a minimum of 60 credits, Permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE474, BIOE674, CHBE474, BIOE489T, or BIOE689E.
**Formerly:** BIOE489T.

**BIOE485 Capstone Design I: Entrepreneurship, Regulatory Issues, and Ethics (3 Credits)**
This is the first part of a two-semester senior capstone design course which covers principles involved in engineering design, design approaches, economics of design, ethics in engineering, and patent regulations. It also helps students learn team work and write design project proposals under the mentorship of a faculty advisor.
**Prerequisite:** 21 credits in BIOE courses; and must have completed or be concurrently enrolled in BIOE457.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and senior standing; and must be in Engineering: Bioengineering program.

**BIOE486 Capstone Design II (3 Credits)**
This is the second part of the senior capstone design course. This part is independent instruction where faculty mentoring each project team works with students to order supplies, fabricate their proposed design under BIOE485, test the design, write the report and present it to their fellow seniors and board of faculty mentors. Students are taught to convert the blue print of a design to actual device and test it.
**Prerequisite:** Must have completed BIOE485 in the immediately preceding semester.
**Restriction:** Senior standing; and must be in Engineering: Bioengineering program; and permission of ENGR-Fischell Department of Bioengineering department.
**Credit Only Granted for:** BIOE486 or ENBE486.
**Formerly:** ENBE486.

**BIOE488 Research Methods in Bioengineering (1-3 Credits)**
Exploring a variety of research methods in the field of Bioengineering.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Repeatable to:** 9 credits if content differs.

**BIOE489 Special Topics in Bioengineering (1-3 Credits)**
Exploring a variety of topics with Bioengineering.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department.
**Repeatable to:** 6 credits.

# BIOM - Biometrics

**BIOM301 Introduction to Biometrics (3 Credits)**
Descriptive statistics, introduction to probability, sampling, confidence interval estimation, hypothesis testing, simple regression and correlation. Emphasis on simple applications of statistical techniques and interpretation of statistical results.
**Prerequisite:** MATH113 or MATH115.

**BIOM386 Experiential Learning (3-6 Credits)**
**Restriction:** Junior standing or higher; and learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.

**BIOM405 Computer Applications in Biometrics (1 Credit)**
An introduction to computer applications for data analysis. This is equivalent to the computer lab of 601 and is required for students that have taken BIOM301 and BIOM402 and wish to go directly into BIOM602.

# BMGT - Business and Management

**BMGT110 Introduction to the Business Value Chain (3 Credits)**
Students are provided with an introduction to the business value chain with an emphasis on inter-organizational and intra-organizational coordination of core business processes. Emphasis is on cross-functional integration and the efficient and effective management of core processes with an emphasis on marketing, operations and supply chain management.

**BMGT160 The Intentional Self (3 Credits)**
As you navigate adulthood, you will constantly be making decisions that impact your personal and professional well being and success. Making these life choices with intention and a perspective of your whole self will increase your life satisfaction. In this course, you will examine who have been, who you are, and who you want to become. We will be exploring the six pillars of the whole self including purpose/character, relationships, wellness, community, prosperity, and nature and creating a vision for your future self.
**Credit Only Granted for:** BMGT160, BMGT198A, or BMGT198B.

**BMGT161 Creative Problem Solving (3 Credits)**
Examines the concept of creative problem solving as it applies in today's and tomorrow's complex business environment. Students will develop an understanding of the creative problem solving process with its distinctive cognitive steps of Divergent Thinking, Emergent Thinking and Convergent Thinking. Topics include creativity techniques for groups and individuals, creativity as a foundation to recognize business opportunities and develop innovative products and services, selecting ideas and making them stick, mental and organizational obstacles to creativity as well as an overview of electronic tools to increase creative capability.

**BMGT162 The Future of You, Business and Society (3 Credits)**
Designed to help you (students) explore the future of you, business, and society. Even as the nature of business (the how) evolves with technology, the purpose of business --to create individual and social prosperity (the why) --remains the same. This course will integrate the "why" and the "how" to prepare students for the future of work. Students will learn the foundational concepts of how to lead themselves with purpose and develop win-win relationships. Students will also learn how organizations solve unmet needs in society, and how they develop and leverage the power of technology and new business practices to create value in a sound and ethical way.

**BMGT190 Introduction to Design and Quality (4 Credits)**
QUEST students learn and apply design practices to design new products and services. Working in multidisciplinary teams, students use quality and process improvement methods to identify, analyze, and recommend solutions to real-world problems.
**Cross-listed with:** ENES190.
**Restriction:** Must be in the Quest program.
**Credit Only Granted for:** BMGT190 or ENES190.

**BMGT198 Special Topics in Business and Management (1-3 Credits)**
Introductory special topics in business and management.
**Restriction:** Must be in a major in BMGT-Robert H. Smith School of Business.
**Repeatable to:** 6 credits if content differs.

**BMGT207 Technology, Society and the Future of Humanity (3 Credits)**
New emerging and converging technologies (such as blockchain, AI, and synthetic biology) are disrupting business-as-usual in fields as diverse as finance, supply chain, medicine and the creative industries. This course deals with the question of how we should use technology to create ethical economic and social systems that reflect the kind of world we want to exist in 25, 50, 100 years from now. Our ideas of what humanity considers to be a "good life" will influence and govern how disruptive technologies can either contribute to it or lead to a dystrophic future.

**BMGT210 Foundations of Accounting for Non Business Majors (3 Credits)**
Provides an understanding of the common statements that report a company's profitability and financial health, and are useful to all economic agents who are engaged with the firm. Students will also recognize and understand managerial accounting as a system for accumulating and modeling information to support decision-making.
**Restriction:** Must not have completed BMGT221; and must not be in a major in the R.H. Smith School of Business.
**Credit Only Granted for:** (BMGT220 and BMGT221) or BMGT210.
**Additional Information:** Does not apply to a Smith School degree. Students pursuing a Smith School minor who have completed both BMGT220 and BMGT221 may substitute these courses for BMGT210. Credit will not be given for both BMGT210 and the combination of BMGT220 and BMGT221.

**BMGT220 Principles of Accounting I (3 Credits)**
Basic theory and techniques of contemporary financial accounting. Includes the accounting cycle and the preparation of financial statements for single owner and partnership forms of business organizations operating as service companies or merchandisers.

**BMGT221 Principles of Accounting II (3 Credits)**
Basic theory and techniques of accounting for managerial decision making. Involves the introduction of the corporation and manufacturing operations. Includes cost-volume-profit analysis and capital budgeting. Introduces the topics of income taxation and international accounting.
**Prerequisite:** BMGT220.

**BMGT230 Business Statistics (3 Credits)**
Introductory course in probabilistic and statistical concepts including descriptive statistics, set-theoretic development of probability, the properties of discrete and continuous random variables, sampling theory, estimation, hypothesis testing, regression and decision theory and the application of these concepts to problem solving in business and management.
**Prerequisite:** MATH113 or MATH115; or must have math eligibility of MATH120 or higher.
**Restriction:** Must not have completed ENCE302, ENME392, STAT400, BMGT231, or ENEE324.

**BMGT262 The Enterprising Leader (3 Credits)**
Designed to help students develop their leadership skills in order to identify their personal and professional purpose with an entrepreneurial mindset, and create strategies that will help them develop their abilities and achieve their aspirations by collaborating within teams and organizations. Students will apply insights from recent scholarship in entrepreneurship, leadership and strategic management to themselves in order to identify solutions to problems they find meaningful to solve in their own world. This self-discovery course will introduce students to the "CEO of ME, Inc." framework and tools such as the strategic initiatives matrix and business model canvas that they can use to help guide the choices that lie ahead, and develop collaborative, win-win relationships. In doing so, students will learn how to unlock the value of business in society and develop entrepreneurial and leadership skills that enable personal happiness and upward mobility.

**BMGT263 Challenge your Thinking, Challenge the Conversation (3 Credits)**
Provides conceptual frameworks and experiential opportunities that will enable students to engage in rational and respectful discourse. The course uses the latest pedagogical techniques and relevant literature to develop skills such as thinking like a scientist, negotiating conflict, and giving and receiving constructive feedback. Specific conversations will draw from current events and issues in business and in society.

**BMGT264 SBLF Capstone Professional Practicum (3 Credits)**
Provides students in the Smith Business Leadership Fellows Program (SBLF) with a capstone opportunity to learn in teams in a real-world setting. Companies engage teams of SBLF students with meaningful organizational challenges and dedicate resources to help students address these problems. Student teams enhance their skills in critical thinking, collaboration, negotiation, quality management and communication. These teams then apply these skills to offer value to a client. In the process, students will improve their teamwork skills.
**Prerequisite:** BMGT162, BMGT262 and BMGT263.

**BMGT289A Social Enterprise: Changing the World through Innovation and Transformative Action (3 Credits)**
In this course, students will hear from real-life social entrepreneurs, explore current day social issues of sustainability, climate change, leadership, disruptive innovations, and create or blueprint business plans to generate positive social change. This class will focus on innovative thinking skills, personal narratives, and social interaction strategies and plans.

**BMGT289B How Do Innovators Think? (3 Credits)**
In this course, students will learn about: a) the innovation process and the role of the individual in generating innovations and b) the attributes, habits, and skills of individuals who have successfully started innovative new businesses or significantly added value to an existing company.

**BMGT289D Frauds, Scams, and Thefts: What, How and Why? (3 Credits)**
"Why" does fraud happen? "How" does society address fraud? And "What" can you do to avoid and prevent fraud in your personal and future career life? This course is designed to give future professionals and managers of all disciplines a general background of fraud. Topics include the psychology of fraud, the mechanics of fraud, the legal landscape, securities fraud, cybercrime, and what all of us should know to protect ourselves from becoming victims of fraud. Additionally, students experience 21st century lessons in fraud examination that have practical application to our daily lives: avoiding cognitive biases, interviewing techniques, basic business controls, and opening our minds to see what others might miss...the red flags of fraud.

**BMGT289E Entrepreneurial Thinking for Non-Business Majors: How Not to Miss Great Opportunities Your Life Throws at You (3 Credits)**
In this course, students learn how to analyze the world around them and then notice and define new trends, emerging problems, impending gaps, and how to turn these into exciting opportunities by providing creative solutions. Students will have a chance to not only sharpen their critical thinking skills, but also learn how to take initiative, develop a working solution, identify and resolve conflicts, and be confident and persistent, yet flexible enough to respond to changes. Student teams identify a compelling problem in present day life and then propose a creative solution taking into account possible difficulties in implementation. In addition, students will also be given problems on a much smaller scale and asked to create and present a workable solution. Students will be exposed to how a visionary's mind works and the creative solution process. In addition, students will also learn how entrepreneurial thinking can improve their day-to-day life.

**BMGT289I Why Good Managers Make Bad Decisions (3 Credits)**
This course provides an overview of the concepts, approaches, and vocabulary of evidence-based management (EBM) and provides an understanding of how experts in many disciplines can employ evidenced based decision making. EBM is an emerging movement in business to explicitly use the current best information in management decision making with special emphasis on relevant scientific findings and unbiased organizational facts. The course stresses how individuals practicing EBM learn how to rethink their approaches to data and knowledge in order to make more effective decisions.

**BMGT289L The Proper Role of Government in a Free Enterprise System (3 Credits)**
This course examines the proper role of the government in overseeing, promoting, or regulating various business activities in a free market system. Areas that warrant government involvement are identified and appropriate government responses are evaluated. The course identifies causes of market failure and discusses when, how and to what extent the government should act to remedy those failures. Finally, varieties of capitalism and the role of the government in other free enterprise counties are evaluated.

**BMGT289M European Debt Crisis: More Integration or Withering of a Dream? (3 Credits)**
This course explores the developments and events that led to the formation of the Economic and Monetary Union (EMU) and analyzes the causes for the eruption of the debt crisis. In addition, the course evaluates the policy steps taken to stabilize the crisis (monetary, banking, fiscal and institutional measures), and it discuss policy options to overcome in a lasting manner the design flaws and strengthen the governance of the EMU, so as to improve its overall economic growth performance.

**BMGT298 Special Topics in Business and Management (1-3 Credits)**
Introductory special topics in business and management.
**Restriction:** Must be in a major in BMGT-Robert H. Smith School of Business.
**Repeatable to:** 6 credits if content differs.

**BMGT299 Student Initiated Special Topics (1 Credit)**
Student initiated special topics in business and management.
**Repeatable to:** 3 credits if content differs.

**BMGT301 Introduction to Information Systems (3 Credits)**
Comprehensive overview of information systems (IS), which explores the strategic and tactical nature of IS. The basic concepts in analyzing and designing information systems for business applications will be presented. Aspects of data management such as databases, data warehousing, data analysis, and data mining will be analyzed, and the basics of web page and web site design will be outlined. Students will also be introduced to modern information systems infrastructure such as telecommunications, networks, and information systems security. Knowledge of Excel or a similar spreadsheet tool.
**Restriction:** Must be in a major in BMGT-Robert H. Smith School of Business.
**Additional Information:** CMSC majors will not receive credit for this course towards their upper level concentration in their CMSC major. All BMGT majors, including students who are a double major in CMSC, must complete BMGT301 for their BMGT degree.

**BMGT302 Essential Programming Skills for Business Analytics (3 Credits)**
The course introduces structured and object-oriented programming and its applications in business functions and analytics. Students will apply problem-solving skills to create software solutions using programming logic and data structures. The course especially emphasizes learning by doing exercises using a modern, high-level programming language and industry standard software.
**Prerequisite:** BMGT301; or permission of BMGT-Robert H. Smith School of Business.
**Restriction:** Must be in a major in BMGT-Robert H. Smith School of Business; and must not be in the Computer Science major.

**BMGT310 Intermediate Accounting I (3 Credits)**
Comprehensive analysis of financial accounting topics related to financial statement preparation and external reporting.
**Prerequisite:** BMGT221.

**BMGT311 Intermediate Accounting II (3 Credits)**
Continuation of BMGT310.
**Prerequisite:** BMGT310.

**BMGT313 Financial Statement Analysis (3 Credits)**
Provides students with the tools to conduct a financial statement analysis, which is part of an overall business analysis. Involves understanding and using the information that financial statements are communicating to users.
**Prerequisite:** BMGT221.

**BMGT321 Managerial Accounting (3 Credits)**
A study of the basic concepts of product costing and cost analysis for management planning and control. Emphasis is placed on the role of the accountant in organizational management, analysis of cost behavior, standard cost budgeting, responsibility accounting and relevant costs for decision-making.
**Prerequisite:** BMGT221.

**BMGT323 Taxation of Individuals (3 Credits)**
Federal taxation of individuals focusing on income, exclusions, deductions, depreciation, credits and capital transactions. Property coverage includes the tax consequences of sales and dispositions of investment and business assets. Both tax planning and compliance issues are covered.
**Prerequisite:** BMGT221.

**BMGT326 Accounting Systems (3 Credits)**
A study of accounting systems and computer and communications technology.
**Prerequisite:** BMGT221; and (BMGT201 or BMGT301).

**BMGT332 Quantitative Models for Management Decisions (3 Credits)**
The aim of this course is to introduce management science techniques for informed decision-making that can be applied in spreadsheet models to assist in the decision-analysis process. Models include Linear Programming, Transportation and Assignment problems, network flow models, Integer and non-linear programming, Simulation and Decision Trees.
**Prerequisite:** BMGT231 or BMGT230; or students who have taken courses with comparable content may contact the department.

**BMGT340 Business Finance (3 Credits)**
Topics include: the principles and practices involved in the organization, financing and rehabilitation of business enterprises; the various types of securities and their use in raising funds, apportioning income, risk and control; intercorporate relations; and new developments. Emphasis on solution of problems of financial policy faced by management.
**Prerequisite:** BMGT220; and (BMGT231 or BMGT230).

**BMGT341 Financial Markets (3 Credits)**
Shows the interconnectedness of the markets. The role of the Central bank and monetary policy is included in this context. Students develop an understanding of: (i) the determination of interest rates; (ii) financial instruments, markets and institutions; (iii) the impact of monetary policy on institutions; and (iv) how financial innovations create markets.
**Prerequisite:** Must have completed or be concurrently enrolled in BMGT340.

**BMGT342 Wall Street Finance (3 Credits)**
Using concepts and tools of finance, students will examine a wide range of business problems and explore possible solutions. The course is designed to improve a student's problem solving capabilities, business writing and communication skills, teamwork, and planning skills. Students will also gain experience in analyzing issues frequently faced by financial decision-makers.
**Prerequisite:** BMGT340.

**BMGT343 Investments (3 Credits)**
An introduction to financial investments. Topics include: securities and securities markets; investment risks, returns and constraints; portfolio policies; and institutional investment policies.
**Prerequisite:** BMGT340.
**Credit Only Granted for:** BMGT343 or ECON435.
**Additional Information:** This course cannot be used to fulfill any requirements for majors in Economics.

**BMGT345 Foundations of Financial Management for Non Business Majors (3 Credits)**
Provides students an overview of financial management. Students will understand how a business allocates financial resources in an uncertain environment to maximize shareholder value. In addition students will learn the following: how to apply accounting principles to corporate finance; how to value assets, projects, companies and investment securities; understand the relationship between risk and return and how it impacts investment and corporate decisions; how to calculate a company's cost of capital, and develop an intuitive comprehension of financial concepts and analysis.
**Prerequisite:** BMGT210 or BMGT220.
**Restriction:** Must not have completed BMGT340; and must not be a major in the R.H. Smith School of Business.
**Credit Only Granted for:** BMGT345 or BMGT340.
**Additional Information:** Course does not apply to a Smith School degree. BMGT340 may substitute for BMGT345.

**BMGT347 Quantitative Financial Analysis (3 Credits)**
Introduces students to data science for financial applications using an industry-standard programming language. Students will use tools ranging from regression models to machine learning to investigate questions across a variety of areas within finance including asset management, corporate finance and FinTech. The course will illustrate how big data and data analytics can improve financial decision-making by focusing on problems facing finance professionals.
**Prerequisite:** BMGT340; must have completed or be concurrently enrolled in BMGT343.
**Credit Only Granted for:** BMGT347 or BMGT448G.
**Formerly:** BMGT448G.

**BMGT349 Private Equity and Venture Capital (3 Credits)**
The New Markets Private Equity/Venture Capital Clinic allows students to gain professional experience commensurate with that of an Associate in a Venture Capital Firm. Students are trained to buy, own, actively manage and sell high growth technology companies in private transactions. The class format includes: lectures; presentations from guest speakers, including the regions leading CEOs, private equity and service providers; and a series of facilitated exercises that simulate buying, owning and selling businesses. The course exposes students to real life activities covering the entire deal process from market research, diligence, selection, negotiation valuing, and structuring an investment, as well as management, growth and exit of portfolio companies.
**Prerequisite:** Must have completed or be concurrently enrolled in BMGT313 and BMGT340.
**Repeatable to:** 6 credits.
**Formerly:** BMGT448B.

**BMGT350 Marketing Principles and Organization (3 Credits)**
An introduction to the concepts and principles of marketing including the marketing of service and nonprofit organizations. Provides an overview of all the concepts in marketing including relationship marketing, product development, pricing, promotion, marketing research, consumer behavior, international marketing, distribution and internal marketing to employees.
**Recommended:** ECON200.

**BMGT351 Marketing Research Methods (3 Credits)**
Focuses on aiding marketing decision-making through exploratory, descriptive and causal research. Develops student skills in designing market research studies, including selection of data collection method, development of data collection instrument, sample design, collection and statistical analysis of data and reporting the results, including data visualization.
**Prerequisite:** BMGT230; and must have completed or be concurrently enrolled in BMGT350.
**Credit Only Granted for:** BMGT351 or BMGT452.
**Formerly:** BMGT452.

**BMGT354 Consumer Analysis (3 Credits)**
Identifying buyer behavior concepts relevant to a specific marketing problem so that appropriate marketing decisions can be made. Conceptual frameworks are drawn from psychology, sociology, economics, and other social sciences to aid in understanding the behavior of ultimate and industrial buyers.
**Prerequisite:** BMGT350.
**Credit Only Granted for:** BMGT354 or BMGT451.
**Formerly:** BMGT451.

**BMGT355 Foundations of Marketing for Non Business Majors (3 Credits)**
Introduces the concepts and principles of marketing. Provides an overview of all the concepts in marketing including relationship marketing, product development, pricing, promotion, marketing research, consumer behavior, international marketing, distribution and internal marketing to employees.
**Restriction:** Must not have completed BMGT350; and must not be a major in the R.H. Smith School of Business.
**Credit Only Granted for:** BMGT355 or BMGT350.
**Additional Information:** Course does not apply to a Smith School degree. BMGT350 may substitute for BMGT355.

**BMGT357 Marketing Internship (3-6 Credits)**
Supervised work experience with a firm engaged in marketing goods or services. Students apply concepts learned in marketing classes and analyze the firm's organizational structure, environment and marketing strategy.
**Prerequisite:** BMGT350.
**Restriction:** Permission of BMGT-Robert H. Smith School of Business; and must be in a major in BMGT-Robert H. Smith School of Business.

**BMGT360 Strategic Management of Human Capital (3 Credits)**
Provides students with the basic knowledge needed to help organizations attract, select, develop, engage, evaluate, and retain talent. Topics covered may include strategic HRM, the role of globalization, legal issues in HRM, work analysis, HR planning, recruitment, personnel selection, performance management and appraisal, training and development, career development, compensation systems, motivating and rewarding performance, labor relations, and employee health and safety.

**BMGT361 Entrepreneurship: Starting and Managing the Entrepreneurial Venture (3 Credits)**
Focuses on the early development of a new venture. Topics include: idea-getting, opportunity recognition, feasibility studies, new venture financing and startup. Guests speakers and practicing entrepreneurs offer real world guidance. Restricted to students admitted to the Smith Entrepreneurship Fellows Program.
**Restriction:** Must be in a major in BMGT-Robert H. Smith School of Business; and must be in the Smith Entrepreneurship Fellows Program; and must not have completed BMGT461.
**Credit Only Granted for:** BMGT261, BMGT361, or BMGT461.
**Formerly:** BMGT261.

**BMGT362 Negotiations (3 Credits)**
By using a variety of assessment tools, feedback sources, skill-building exercises, and exercise debriefings, this experiential course is designed to enhance students' negotiating self-confidence and improve students' analytical skills, interpersonal skills, creativity and persuasive abilities.
**Restriction:** Must not have completed COMM425.
**Credit Only Granted for:** BMGT362 or COMM425.

**BMGT363 Leadership and Teamwork in Organizations (3 Credits)**
Provides a comprehensive understanding of fundamental leadership concepts, theories, and skills in organizations and applies to assessing and developing effective leadership practices in organizations.

**BMGT364 Managing People and Organizations (3 Credits)**
An introduction to selected aspects of human behavior in organizations generally known as organizational behavior (OB). This course is designed to help students develop systematic and fundamental understanding of people and their behaviors in organizations, as well as useful abilities and skills required to effectively and ethically manage various individual, interpersonal, group, and organization-level processes.

**BMGT365 Entrepreneurial Finance and Private Equity (3 Credits)**
Studies venture capital and private equity using a combination of cases, lectures and guest speakers. Addresses how venture capitalists provide capital to start-up firms in growing industries and how private equity markets provide capital to help established medium-sized firms (often family businesses) grow and restructure. Focuses on how financial, legal, and economic issues are dealt with in the financial contracts between venture capitalists and their limited partners and between capitalists (or other private equity investors) and the firms in which they invest.
**Prerequisite:** BMGT461 or BMGT361.
**Restriction:** Junior standing or higher.
**Credit Only Granted for:** BMGT365, ENES466, SMLP471 or HLMN471.

**BMGT366 Growth Strategies for Emerging Companies (3 Credits)**
Offers practical management tools that are needed to build a new venture into a significant enterprise. The competencies, strategies and structures of successful high performance businesses are studied through cases, videos and guest lecturers. Topics include leadership, internal growth strategies, merger, acquisition and franchising.
**Prerequisite:** BMGT461 or BMGT361.
**Restriction:** Junior standing or higher.

**BMGT367 Career Search Strategies in Business (1 Credit)**
An overview and opportunity to practice job search skills critical to obtaining internships and full-time positions. Course will cover strategies for exploring career options, preparing job search materials, development of job search skills such as interviewing and networking. Students are encouraged to take this course in the sophomore or junior year.
**Restriction:** Must be in a major in BMGT-Robert H. Smith School of Business.

**BMGT369 Experiential Learning in Business Innovation and Entrepreneurship (1-3 Credits)**
Selected experiential learning opportunities in business innovation and entrepreneurship
**Repeatable to:** 15 credits if content differs.
**Additional Information:** Priority will be given to students enrolled in the Management Major, Innovation and Entrepreneurship Minor, and the General Business Minor.

**BMGT370 Introduction to Transportation (3 Credits)**
An overview of the transportation field with an emphasis on freight movements from the perspective of both providers of capacity and users of freight services. Examines the characteristics of the freight modes and the role of each mode as a major component of logistics and supply chain management. Explores the economics, energy use, and finances of each mode as well as the impact of government policies on each mode's future. Discussion of infrastructure and capacity needs of the transportation system and its ability to support the economy.

**BMGT372 Introduction to Logistics and Supply Chain Management (3 Credits)**
Supply chain management involves the coordination of suppliers, manufacturers, distributors, and retailers to ensure that products and services are available to the final consumer in a timely and cost-effective fashion. Logistics management is the subset of supply chain management dealing with the physical flows of product and includes such activities as transportation management, warehousing, materials handling, inventory management, and order fulfillment. Attention is paid to the logistics cost trade-offs within the firm and between members of the supply chain.
**Credit Only Granted for:** BMGT375 or BMGT372.

**BMGT373 Supply Chain Management Internship (3-6 Credits)**
Involves supervised work experience in supply chain management, logistics and/or transportation. Students will be expected to relate course material to work experience in an analysis of a firm's operations.
**Prerequisite:** BMGT370 or BMGT372.
**Restriction:** Permission of BMGT-Robert H. Smith School of Business.

**BMGT374 Supply Chain Risk Management (3 Credits)**
Since supply chain risk is increasingly more recognized as an organizational threat, and therefore a critical part of corporate strategy; this course examines a wide range of supply chain risk and develops a process to identify, assess, and prioritize this risk. Through a series of readings and case studies, the course focuses on factors that contribute to supply chain risk within the firm as well as the supply chain. Strategies to mitigate risk are explored.
**Credit Only Granted for:** BMGT478C or BMGT374.
**Formerly:** BMGT478C.

**BMGT375 Supply Chain Management for Non Business Majors (3 Credits)**
Examines management decision-making in the design, implementation and coordination of a firm's supply chain activities. Topics include transportation management, warehousing, materials handling, inventory management, and order fulfillment.
**Restriction:** Must not have completed BMGT372; and must not be a major in the Robert H. Smith School of Business.
**Credit Only Granted for:** BMGT375 or BMGT372.
**Additional Information:** Course does not apply to a Smith School degree. Course may be substituted by BMGT372 for General Business minor students only.

**BMGT380 Business Law I (3 Credits)**
Legal aspects of business relationships. Examination of torts and business crimes, contracts and agency. The law of personal property and bailment relationships. Survey of public policy issues.

**BMGT382 Marketing and Innovation for Entrepreneurs (3 Credits)**
Marketing and Innovation are two critically important activities that determine success in any business venture. This course will focus on understanding the fundamentals of marketing and innovation from the perspective of an entrepreneur. At a broad level, we will apply proven marketing frameworks (STP and 4Ps) to effectively deliver innovation in an entrepreneurial context.
**Restriction:** Must not have completed BMGT352.
**Credit Only Granted for:** BMGT352, BMGT382 or BMGT456.
**Additional Information:** Course will not satisfy a Marketing major requirement.

**BMGT385 Operations Management (3 Credits)**
Studies the design, management and improvement of a firm's processes and systems for creation and delivery of products and services. Includes strategic and operational views of supply chain, product development, and capacity analysis, highlighting the competitive advantages that operations management can provide the firm.
**Credit Only Granted for:** BMGT385 or ENME426.

**BMGT386 General Business Internship (3-6 Credits)**
Supervised work experience in business. Students will be expected to relate course material to work experience in an analysis of a firm's operations.
**Restriction:** Permission of BMGT-Robert H. Smith School of Business; and must be in a major in BMGT-Robert H. Smith School of Business.

**BMGT390 Designing Innovative Systems (3 Credits)**
QUEST students develop an understanding of complex systems that incorporate elements of business and technical design and analyze how these systems evolve over time and may be shaped by technology disruptions, internal decisions, and external forces. Students apply these concepts to real-world complex systems in a team environment.
**Prerequisite:** ENES190 or BMGT190.
**Cross-listed with:** ENES390.
**Restriction:** Must be in the QUEST program.
**Credit Only Granted for:** BMGT390 or ENES390.

**BMGT392 Introduction to International Business Management (3 Credits)**
A study of the domestic and foreign environmental factors affecting the international operations of U.S. business firms. The course also covers the administrative aspects of international marketing, finance and management.
**Prerequisite:** ECON200.

**BMGT395 Principles of Management for Non Business Majors (3 Credits)**
Introduces concepts related to organization behavior. Topics include leadership, team decision making and management, conflict resolution and negotiations, organizational culture, and organization change. Students will learn how to apply those concepts and theories to understanding and critically analyzing various individual, interpersonal, group, and organizational management processes.
**Restriction:** Must not have completed BMGT364; and must not be a major in the Robert H. Smith School of Business.
**Credit Only Granted for:** BMGT395 or BMGT364.
**Additional Information:** Course does not apply to a Smith School degree. Course may be substituted by BMGT364 for General Business minor students only.

**BMGT397 Mentoring Multidisciplinary Teams (3 Credits)**
QUEST students practice essential skills for mentoring and coaching multidisciplinary teams. These include effective communications, facilitation, conflict resolution, and the ability to motivate. Students will practice these skills as mentors for student teams from BMGT/ENES 190H. In the process, they will strengthen their knowledge of design and quality techniques.
**Cross-listed with:** ENES397.
**Restriction:** Restricted to QUEST Program (TQMP) students.
**Credit Only Granted for:** BMGT397 or ENES397.

**BMGT398 Individual Study in Business and Management (1-3 Credits)**
**Restriction:** Permission of BMGT-Robert H. Smith School of Business.
**Repeatable to:** 6 credits.

**BMGT402 Database Systems (3 Credits)**
The fundamentals of database management systems (DBMS), data models, query processing, and data warehouses, and their application in the development of business information systems will be covered. An important goal of this course is to understand the value of information resources and information management challenges within an organization.
**Recommended:** BMGT302.
**Credit Only Granted for:** INST327 or BMGT402.

**BMGT403 Systems Analysis and Design (3 Credits)**
Techniques and tools applicable to the analysis and design of computer-based information systems. System life cycle, requirements analysis, logical design of databases and performance evaluation. Emphasis on case studies. Project required that involves the design, analysis and implementation of an information system.
**Prerequisite:** BMGT301; or students who have taken courses with comparable content may contact the department.
**Recommended:** BMGT302.

**BMGT404 Essential Data Skills for Business Analytics (3 Credits)**
Building on prior programming knowledge, this course introduces principles of data science to collect, analyze, and visualize business data. Students will explore application of business analytics in areas such as finance, accounting, marketing, and operations. This course especially emphasizes learning by doing exercises using a modern, high-level programming language and industry standard software.
**Prerequisite:** BMGT302.
**Credit Only Granted for:** BMGT404 or CMSC320.
**Additional Information:** CMSC majors will not receive credit for this course towards their upper level concentration in their CMSC major.

**BMGT406 Developing Applications for the Web and Social Media (3 Credits)**
The design and development of Web applications and the underlying platforms and standards for Web application development will be covered. It will examine the phenomenon of social media, social networking and crowdsourcing and understand their use within organizations.
**Prerequisite:** BMGT402 and BMGT302.
**Restriction:** Must be in a major in BMGT-Robert H. Smith School of Business.
**Credit Only Granted for:** INST377 or BMGT406.

**BMGT407 Information Systems Projects (3 Credits)**
Senior capstone course for the information systems major. Collected knowledge from the IS courses and application to significant problems of size and complexity. State-of-the-art research ideas and current business and industrial practices in information systems.
**Prerequisite:** BMGT402 and BMGT403.
**Restriction:** Senior standing.

**BMGT408 Emerging Topics in Information Systems (3 Credits)**
Selected advanced topics covering emerging developments in the field of decision and information technologies.
**Restriction:** Permission of BMGT-Robert H. Smith School of Business.
**Repeatable to:** 9 credits if content differs.

**BMGT410 Government Accounting (3 Credits)**
An introduction to the theory and practice of accounting and financial reporting as applied in both federal and state/local governments, with a focus on generally accepted accounting principles applicable in each. Topics include analyzing transactions; recognizing transactions in the accounting cycles; and preparing and analyzing financial statements and the overall financial reports at both the federal and state/local government levels.
**Prerequisite:** BMGT221.

**BMGT411 Ethics and Professionalism in Accounting (3 Credits)**
Analysis and discussion of issues relating to ethics and professionalism in accounting.
**Prerequisite:** BMGT311.
**Restriction:** Must be in Accounting program.

**BMGT417 Taxation of Corporations, Partnerships and Estates (3 Credits)**
Federal taxation of corporations using the life-cycle approach-formation, operation, assessment, merger, reorganization and liquidation. Overviews of pass-through entities - partnerships and s-corporations -using the life-cycle approach, and the tax consequences of wealth transfers by individuals - gift and estate taxation. Both tax planning and compliance issues are addressed.
**Prerequisite:** BMGT221.

**BMGT422 Auditing Theory and Practice (3 Credits)**
A study of the independent accountant's attest function, generally accepted auditing standards, compliance and substantive tests and report forms and opinions.
**Prerequisite:** BMGT310; and must have completed or be concurrently enrolled in BMGT311.

**BMGT423 Fraud Examination (3 Credits)**
The focus of this course in fraud accounting is on fraud prevention, detection, and investigation as relevant to accountants and fraud examiners. Most organizations are affected to some degree by the occurrence of fraud, whether or not reported. It is estimated that organizations, WORLDWIDE, lost roughly 5% of their annual revenues to fraud. Despite advances in technology, the problem of fraud continues to escalate; and in particular, cybercrime is growing at an alarming rate. The course will serve as an introduction to all of the topics covered in the Certified Fraud Examiner (CFE) examination. While not purporting to be an exam preparation course, the diligent student could be CFE exam ready soon after taking this course. This course provides an introduction to the profession of fraud examination for accounting majors or for individuals seeking to satisfy the educational requirements for the CPA examination.
**Prerequisite:** BMGT220 or BMGT210.

**BMGT424 Advanced Accounting (3 Credits)**
Advanced accounting theory applied to specialized topics and current problems. Emphasis on consolidated statements and partnership accounting.
**Prerequisite:** BMGT311.

**BMGT428 Special Topics in Accounting (3 Credits)**
Selected advanced topics in Accounting.
**Prerequisite:** BMGT310.
**Restriction:** Must be in Accounting program.
**Repeatable to:** 9 credits if content differs.

**BMGT430 Data Modeling in Business (3 Credits)**
Explores the role of statistical models in business analytics to drive managerial decision-making and improve performance through the use of relevant data-motivated examples. Topics include regression models (both simple and multiple regression, as well as logistic regression for binary data), model validation, variable transformation, variable selection, discriminant analysis, and forecasting. These topics are modeled using state-of-the-art data analytics software.
**Prerequisite:** BMGT231 or BMGT230; or permission of BMGT-Robert H. Smith School of Business.

**BMGT431 Data Analytics (3 Credits)**
An introduction to the tools and techniques that are central to the analysis of abundant data that is being collected in many forms including web traffic, social network data, and reviews and comments on websites.
**Prerequisite:** BMGT430.

**BMGT434 Analytics Consulting: Cases and Projects (3 Credits)**
This course assumes that students have already been introduced to the concepts and techniques of operations research/business analytics (OR/BA). Published papers, short cases, and projects in OR/BA will be analyzed and discussed in a thoughtful way, taking into account the soft (people-related) issues and the hard (mathematical/optimization) issues.
**Prerequisite:** BMGT332 and BMGT385.

**BMGT435 Business Process Simulation (3 Credits)**
Covers the methods for computer simulation modeling and analysis of complex systems. Students are assumed to have been introduced to the basic techniques and applications in the field of operations management and business analytics. Course emphasis is on modeling of real-world systems (for example, inventory or queueing systems), implementing simulations in special purpose software, and analyzing simulation results.
**Prerequisite:** BMGT332 and BMGT385.

**BMGT438 Special Topics in Operations Management (1-3 Credits)**
Selected advanced topics in operations management.
**Repeatable to:** 6 credits if content differs.

**BMGT440 Advanced Financial Management (3 Credits)**
Analysis and discussion of cases and readings relating to financial decisions of the firm. The application of finance concepts to the solution of financial problems is emphasized.
**Prerequisite:** BMGT340.

**BMGT441 Fixed Income (3 Credits)**
Describes important financial instruments which have market values that are sensitive to interest rate movements. Develops tools to analyze interest rate sensitivity and value fixed income securities. Defines and explains the vocabulary of the bond management business.
**Prerequisite:** BMGT340.

**BMGT442 Advanced Portfolio Management (3 Credits)**
An in-depth coverage of statistical methods for choosing stocks is provided. Financial markets data is used in the class. Students are also expected to learn and use an industry-standard programming language during the class to implement the concepts of the class.
**Prerequisite:** BMGT343 and BMGT347.

**BMGT443 Applied Equity Analysis and Portfolio Management (3 Credits)**
Study and application of the concepts, methods, models, and empirical findings to the analysis, valuation and selection of securities, especially common stock.
**Prerequisite:** BMGT343.

**BMGT444 Futures and Options Contracts (3 Credits)**
The institutional features and economic rationale underlying markets in futures and options. Hedging, speculation, structure of futures prices, interest rate futures, efficiency in futures markets and stock and commodity options.
**Prerequisite:** BMGT343.
**Credit Only Granted for:** BMGT444 or MATH424.

**BMGT445 Banking and Financial Institutions (3 Credits)**
Analysis and discussion of cases and readings in commercial bank management. The loan function is emphasized; also the management of liquidity reserves, investments for income and source of funds. Bank objectives, functions, policies, organization, structure, services and regulation are considered.
**Prerequisite:** BMGT340.
**Recommended:** ECON330 or BMGT341.

**BMGT446 International Finance (3 Credits)**
Financial management from the perspective of the multinational corporation. Topics covered include the organization and functions of foreign exchange and international capital markets, international capital budgeting, financing foreign trade and designing a global financing strategy. Emphasis of the course is on how to manage exchange and political risks while maximizing benefits from global opportunity sets faced by the firm.
**Prerequisite:** BMGT340.

**BMGT448 Special Topics in Finance (1-3 Credits)**
Selected advanced topics in finance.
**Repeatable to:** 9 credits if content differs.

**BMGT449 Investment Fund Management: Lemma Senbet Fund (3 Credits)**
The Lemma Senbet Fund is a year-long, advanced finance course available to undergraduate finance majors in their senior year. Ten to twelve students will be selected in the spring of their junior year to participate on the fund, two as portfolio managers and eight to ten as equity analysts. The course provides students with the opportunity to apply what they have learned in finance classes to actual investment decisions, through researching real companies and managing a portfolio of real money.
**Prerequisite:** BMGT343.
**Corequisite:** BMGT443.
**Restriction:** Permission of BMGT-Robert H. Smith School of Business.
**Repeatable to:** 6 credits if content differs.

**BMGT450 Integrated Marketing Communications (3 Credits)**
In-depth study of coordinated marketing activities including advertising, sales promotion, Internet marketing, direct marketing and personal selling. Emphasizes strategic planning to effectively use these promotional tools to communicate with customers and meet marketing goals. Blends theory and current practice to provide managerial orientation.
**Prerequisite:** BMGT350.
**Restriction:** Must be in a major in BMGT-Robert H. Smith School of Business.

**BMGT453 Retail Management (3 Credits)**
Planning and implementing retail marketing strategy. Application to store and non-store (catalog, internet) retailing. Evaluation of how environmental trends in the consumer market, competition, the economy and technology affect retail strategy in the U.S. and global market.
**Prerequisite:** BMGT220 and BMGT350.
**Credit Only Granted for:** BMGT353 or BMGT453.
**Formerly:** BMGT353.

**BMGT454 Global Marketing (3 Credits)**
Marketing functions from the global executive's viewpoint, including coverage of global marketing policies relating to product adaptation, data collection and analysis, channels of distribution, pricing, communications and cost analysis. Consideration is given to the cultural, legal, financial and organizational aspects of global marketing.
**Prerequisite:** BMGT350.

**BMGT455 Sales Management (3 Credits)**
The roles of the sales executive as a planner, manager of resources and marketing functions and recruiter, trainer, motivator and leader of field sales personnel. Techniques and sequence of problem analysis for selling and sales management decisions and to the practical framework in which these decisions take place. Teaching vehicles feature strong classroom interactions, cases, journal articles, research findings, guest sales managers, debates, and modern company practices.
**Prerequisite:** BMGT350.

**BMGT456 Customer-Centric Innovation (3 Credits)**
Addresses the management of new products and services with a focus on the innovation process, specifically the development and launching of new products or services: Opportunity Identification, Concept Generation, Design, Testing and Launch.
**Prerequisite:** BMGT350.
**Credit Only Granted for:** BMGT352, BMGT382 or BMGT456.
**Formerly:** BMGT352.

**BMGT457 Marketing Policies and Strategies (3 Credits)**
This capstone course ties together various marketing concepts using the fundamentals of strategic market planning as the framework. Application of these principles is accomplished by analyzing and discussing cases and by playing a marketing strategy computer simulation game. Analysis of current business articles to understand the link between theory and real-world problem solving.
**Prerequisite:** BMGT350.

**BMGT458 Special Topics in Marketing (1-3 Credits)**
Selected advanced topics in marketing.
**Repeatable to:** 6 credits if content differs.

**BMGT461 Entrepreneurship (3 Credits)**
Process of creating new ventures, including evaluating the entrepreneurial team, the opportunity and the financing requirements. Skills, concepts, mental attitudes and knowledge relevant for starting a new business.
**Restriction:** Must not have completed BMGT361.
**Credit Only Granted for:** BMGT261, BMGT361, BMGT461, ENES460, SMLP470 or HLMN470.

**BMGT463 Cross-cultural Challenges in Business (3 Credits)**
Examines in depth the nature of international cultural value-differences and their behavioral-related effects in the workplace. Topics include decision-making and leadership styles and reactions to various work assignments and reward structures.
**Restriction:** Must be in a major in BMGT-Robert H. Smith School of Business.

**BMGT465 Business Plan For The New Venture (3 Credits)**
Each student focuses on the production of a business plan that will be accepted for an annual business plan competition. Business plans of sufficient quality may be submitted to attract financing. Topics include a deep review of business construction and its derivative short forms.
**Prerequisite:** BMGT461 or BMGT361.

**BMGT466 Global Business Strategy (3 Credits)**
Focuses on the strategic challenges that directly result from and are associated with the globalization of industries and companies. Topics include drivers of industry globalization, difference between global and multi-domestic industry, global expansion strategies, sources of competitive advantage in a global context, and coordination of a company across a global network.
**Restriction:** Must be in a major in BMGT-Robert H. Smith School of Business.

**BMGT467 Strategic Innovation and Entrepreneurship (3 Credits)**
Provides an understanding of how innovation affects the competitive dynamics of markets, how firms can strategically manage innovation, and how firms can create and implement strategies to maximize their likelihood of success.
**Credit Only Granted for:** BMGT467, ENES463 or HLMN472.

**BMGT468 Special Topics in Management and Organization (1-3 Credits)**
Selected advanced topics in management and organization.
**Repeatable to:** 6 credits if content differs.

**BMGT469 Management and Organization Short-term Study Abroad (3 Credits)**
Selected short-term study abroad topics in management and organization.
**Repeatable to:** 9 credits if content differs.

**BMGT472 Purchasing and Inbound Logistics (3 Credits)**
Analysis of the resupply activities of logistics management, including purchasing policies, transportation planning, and inventory control. Attention is directed toward total cost minimization and the establishment of a sustainable competitive advantage based on procurement.
**Prerequisite:** BMGT372.

**BMGT475 Supply Chain Strategy and Network Design (3 Credits)**
Analysis of the strategic aspects of supply chain management. Emphasis on the creation of end-user value through supply chain cost reductions, service improvements or both. Attention is directed toward the enabling role of technology in support of strategy evaluation and implementation.
**Prerequisite:** BMGT372.

**BMGT476 Technology Applications in Supply Chain Management (3 Credits)**
An understanding of the role of technology in managing the supply chain. Provides students with hands-on experience in advanced software systems that build on top of enterprise resource planning systems. Major emphasis is placed on demonstrating that these systems result in supply chain cost reductions and service improvements.
**Prerequisite:** BMGT372.

**BMGT477 International Supply Chain Management (3 Credits)**
The study of the importance of the supply chain management within a global context. Topics covered include: the structure, service, pricing and competitive relationships among international carriers and transport intermediaries as well as documentation, location decisions, international sourcing/distribution and management of inventory throughout the international supply chain.

**BMGT478 Special Topics in Supply Chain Management (3 Credits)**
Selected advanced topics in supply chain management.
**Repeatable to:** 9 credits if content differs.
**Additional Information:** Course prerequisites will vary depending on the topic. A maximum of 3 credits of BMGT478 course work can fulfill Supply Chain Management major requirements.

**BMGT484 Digital Marketing (3 Credits)**
Examines the process of developing, implementing, and analyzing strategies for successfully marketing a variety of existing and potential products and services through digital means, including the web, social media, and mobile apps. Both the development and analysis of digital media for marketing will be discussed.
**Prerequisite:** BMGT350.
**Restriction:** Must be in a major in BMGT-Robert H. Smith School of Business.

**BMGT485 Project Management (3 Credits)**
Modern project management techniques that are used by modern practicing professionals will be covered. Particular attention is given to the management of technology based systems and projects in a business enterprise. The topics covered include: defining project scope, alignment of projects with enterprise strategy, managing project cost, time and risks using tools such as CPM/PERT, and measuring project performance.
**Prerequisite:** BMGT231 or BMGT230; or students who have taken courses with comparable content may contact the department.
**Restriction:** Must be in a major in BMGT-Robert H. Smith School of Business.
**Credit Only Granted for:** BMGT485, ENCE320, ENCE325, INST408O or INST453.

**BMGT487 Six Sigma Innovation (3 Credits)**
Enhances the overall understanding of Six Sigma Strategy, Tools and Methods to positively influence the performance of a business process, a product or service. Highlights the application of Define-Measure-Analyze-Improve-Control (DMAIC),Design For Six Sigma (DFSS), and the pursuit of Critical to Quality criteria (CTQ's) in a collaborative perspective, one that recognizes a balance between efficiency, and effectiveness and between statistical analysis and statistical thinking.
**Prerequisite:** STAT400, BMGT231, BMGT230, or ENME392.

**BMGT488 Special Topics in Logistics, Business, and Public Policy (1-3 Credits)**
Selected advanced topics in logistics, business and public policy.
**Repeatable to:** 6 credits if content differs.

**BMGT490 QUEST Capstone Professional Practicum (4 Credits)**
The capstone course for the QUEST Honors Program provides students with an opportunity to learn in multidisciplinary teams of business, engineering, and science students in a real-world setting. Companies engage teams of QUEST students with real organizational challenges and dedicate resources to help students address these problems. Student teams must enhance their skills in quality management, process improvement, and systems design and will apply these to add value to a client. In the process, students will improve their teamwork skills.
**Prerequisite:** ENES390 or BMGT390.
**Cross-listed with:** ENES490.
**Credit Only Granted for:** BMGT490 or ENES490.

**BMGT491 Scoping Experiential Learning Projects (3 Credits)**
QUEST students cultivate relationships with new and current corporate partners and prepare project scopes for QUEST's introductory course, BMGT/ENES 190H, and capstone course, BMGT/ENES 490H. Requires independent work communicating with clients and class visits to a variety of potential project sites.
**Prerequisite:** BMGT190 or ENES190.
**Cross-listed with:** ENES491.
**Restriction:** Restricted to QUEST Program (TQMP) students.
**Credit Only Granted for:** BMGT491 or ENES491.

**BMGT493 Honors Study (3 Credits)**
First semester of the senior year. The course is designed for honors students who have elected to conduct intensive study (independent or group). The student will work under the direct guidance of a faculty advisor and the Assistant Dean of Undergraduate Studies. They shall determine that the area of study is of a scope and intensity deserving of a candidate's attention. Formal written and/or oral reports on the study may be required by the faculty advisor.
**Restriction:** Permission of BMGT-Robert H. Smith School of Business.

**BMGT494 Honors Study (3 Credits)**
Second semester of the senior year. The student shall continue and complete the research initiated in BMGT 493, additional reports may be required at the discretion of the faculty advisor and Assistant Dean of Undergraduate Studies.
**Prerequisite:** BMGT493.
**Restriction:** Permission of BMGT-Robert H. Smith School of Business; and must be in the Smith School Honors Fellows program.

**BMGT495 Strategic Management (3 Credits)**
A case-based course where students learn to play the role of the "strategic manager" who defines the scope of its business operations and, within the chosen scope, how the firm will compete against rivals. This course focuses on how a firm can both formulate effective business-level and corporate-level strategies to achieve competitive advantage and earn above average profits.

**BMGT496 Business Ethics and Society (3 Credits)**
A study of the standards of business conduct, morals and values as well as the role of business in society with consideration of the sometimes conflicting interests of and claims on the firm and its objectives. Emphasizes a strategic approach by business to the management of its external environment.
**Prerequisite:** 1 course in BMGT; or permission of BMGT-Robert H. Smith School of Business.

**BMGT498 Special Topics in Business and Management (3 Credits)**
Special topics in business and management designed to meet the changing needs and interests of students and faculty.
**Restriction:** Permission of BMGT-Robert H. Smith School of Business.
**Repeatable to:** 6 credits if content differs.

**BMGT499 Advanced Business Topics (1 Credit)**
Course will delve deeply into a specific business topic. Based on experience and knowledge from undergraduate core business classes, students will examine a particular subject from various angles.
**Restriction:** Must be in a major in BMGT-Robert H. Smith School of Business.
**Repeatable to:** 3 credits if content differs.

# BSCI - Biological Sciences Program

**BSCI103 The World of Biology (4 Credits)**
An introduction to modern biology for the non-science major. Major themes include molecular biology, cell biology, evolution and organismal biology. Relevance of study of biology to modern human life will be emphasized.
**Additional Information:** Not acceptable for degree requirements in Biological Sciences, Chemistry, or Biochemistry.

**BSCI120 Insects (3 Credits)**
A survey of the major groups of insects, their natural history, and their relationships with humans and their environment. Course not acceptable toward major requirements in Biological Sciences, Chemistry or Biochemistry.

**BSCI124 Plant Biology for Non-Science Students (3 Credits)**
A basic course in plant biology specifically designed for the non-science student. Emphasis is placed on an evolutionary and ecological approach to studying fundamental concepts and processes of plants, their place in the biosphere, the importance of plants to man, and the manner in which humans impact on plants and their environment. This course will not count toward graduation requirements for any student in Biological Sciences, Chemistry, Biochemistry or the College of Agriculture and Natural Resources.
**Restriction:** For non-science majors only; and must not have completed BSCI105; and must not have completed BSCI170 or BSCI171.
**Additional Information:** CORE Life Sciences Lab (LL) Course only when taken concurrently with BSCI125.

**BSCI125 Plant Biology Laboratory (1 Credit)**
An introduction to the biology of plants with emphasis on the processes by which plants function, the diversity of plants, and the importance of plants to humans. This course will not count toward graduation requirements for any student in Biological Sciences, Chemistry, Biochemistry or the College of Agriculture and Natural Resources. CORE Lab Science.
**Corequisite:** BSCI124.
**Restriction:** For non-science majors only; and must not have completed BSCI105; and must not have completed BSCI170 or BSCI171.
**Additional Information:** CORE Life Sciences Lab (LL) Course only when taken concurrently with BSCI124.

**BSCI126 Pollinators in Crisis (3 Credits)**
How are pollinators threatened by climate change, habitat destruction, and human interaction, and what are some ways to support and protect them? We will dissect the pollinator crisis, and in the process learn about insects, about the interaction of organisms in complex ecosystems, and about the human-nature interface. Students will work in groups that specialize in an aspect of pollinator biology and their challenges. Instruction will target methods for collecting information, interpretation of scientific information and the professional presentation of findings.

**BSCI130 Calculus for Life Sciences I (1 Credit)**
CALC FOR LIFE SCIENCES I

**BSCI133 For the Love of Insects (3 Credits)**
Insects and their close relatives play an important role in the environment and human society. They provide many environmental services and their presence influences the rest of life on earth. Their contribution to society is often underestimated and underappreciated. Through a diversity of activities, students will leave with a greater appreciation and understanding of insects vital role to humanity.

**BSCI135 Amazing Green: Plants that Transformed the World (4 Credits)**
In what profound ways have plants changed humanity and the world we live in today? An interactive way to learn about plants and science, focusing on how plants have changed human history, the biology of their growth, and the science behind their use.

**BSCI145 The Insect Apocalypse: Real or Imagined? (4 Credits)**
Could the ongoing global decline in insect populations portend the end of of, terrestrial and freshwater ecosystems? An article in the New York Times, in in, 2018, declared an "Insect Apocalypse" that for the first time brought the general, general,, unexplained declines in in insects to the public and suggested a catastrophe awaits awaits, our planet. Scientists have documented the loss of insect species at a rate rate, exceeding the extinction rates associated with the major geological events in in, Earth's history. Based on science and research, students will be provided with with, background, and discover on their own, the diversity of the form and functions of of, insects, as well as how they evolved and persisted for 400 million years. The The, course, designed for students of any major, celebrates the incredible variation of of, insect life and what they do to support life on our planet. The course will highlight highlight, the use of scientific research to understand and respond to the global crisis.

**BSCI151 Beyond Race: Human Biological Diversity (3 Credits)**
Do racial labels have any practical use in understanding human biological diversity? Such categorizations are inextricably linked to racism, including a history of misuse in science going back hundreds of years, yet modern biological research and medicine often include the use of race. At its core, addressing this question requires understanding the balance between genetic and non-genetic factors underlying human diversity. The course will help students make an informed critique of the biological basis of race through the study of topics such as: basic biology, data analysis and experimental design, human evolution and genetics, and biomedical research and health outcomes.
**Credit Only Granted for:** BSCI189I, BSCI150 or BSCI151.
**Formerly:** BSCI150.

**BSCI160 Principles of Ecology and Evolution (3 Credits)**
Basic principles of biology with special emphasis on ecological and evolutionary biology.
**Prerequisite:** Must have math eligibility of MATH120 or higher.
**Recommended:** For Science majors.
**Credit Only Granted for:** BSCI106 or BSCI160.
**Formerly:** BSCI106.

**BSCI161 Principles of Ecology and Evolution Lab (1 Credit)**
Basic laboratory principles of biology with special emphasis on ecological and evolutionary biology.
**Prerequisite:** Must have math eligibility of MATH120 or higher.
**Corequisite:** BSCI160.
**Recommended:** For Science majors.

**BSCI170 Principles of Molecular & Cellular Biology (3 Credits)**
Basic principles of biology with special emphasis on cellular and molecular biology.
**Prerequisite:** Must have math eligibility of MATH120 or higher.
**Recommended:** For Science majors.
**Credit Only Granted for:** BSCI105 or BSCI170.
**Formerly:** BSCI105.

**BSCI171 Principles of Molecular & Cellular Biology Laboratory (1 Credit)**
Basic laboratory principles of biology with special emphasis on cellular and molecular biology.
**Prerequisite:** Must have math eligibility of MATH120 or higher.
**Corequisite:** BSCI170.
**Recommended:** For Science majors.

**BSCI201 Human Anatomy and Physiology I (4 Credits)**
Anatomy and physiology of the skeletal, muscular, neural, endocrine, and sensory systems. Course not acceptable toward major requirements in Biological Sciences, Chemistry or Biochemistry.
**Prerequisite:** Minimum grade of C- in BSCI170; or students who have taken courses with comparable content may contact the CMNS-Biology department.

**BSCI202 Human Anatomy and Physiology II (4 Credits)**
Anatomy and physiology of the cardiovascular, respiratory, immune, digestive, urinary and reproductive systems. Course not acceptable toward major requirements in Biological Sciences, Chemistry or Biochemistry.
**Prerequisite:** Minimum grade of C- in BSCI201; or students who have taken courses with comparable content may contact the CMNS-Biology department.

**BSCI207 Principles of Biology III - Organismal Biology (3 Credits)**
The diversity, structure and function of organisms as understood from the perspective of their common physicochemical principles and unique evolutionary histories.
**Prerequisite:** BSCI160 and BSCI161; or BSCI106. And BSCI170 and BSCI171; or BSCI105. And must have completed or be concurrently enrolled in CHEM131.

**BSCI222 Principles of Genetics (4 Credits)**
Principles and mechanisms of heredity and gene expression. Considers plant, animal, and microbial organisms.
**Prerequisite:** CHEM131 and CHEM132; and (BSCI160 and BSCI161; or BSCI106); and (BSCI170 and BSCI171; or BSCI105). Or must have completed BSCI105 or (BSCI170 and BSCI171); and two semesters of chemistry.

**BSCI223 General Microbiology (4 Credits)**
How have microorganisms exploited every conceivable ecological niche, and how have humans harnessed this diversity to improve medicine, agriculture, and biotechnology? The course covers fundamental concepts in morphology, physiology, genetics, immunology, ecology, and pathogenic microbiology. Applications of microbiology to medicine, the food industry, and biotechnology.
**Prerequisite:** BSCI170 and BSCI171; or BSCI105.
**Credit Only Granted for:** BSCI223 or BSCI283.

**BSCI238 Special Topics in Biology Student Initiated Courses (1 Credit)**
Student Initiated Course (STIC) in Biology. Course will be student initiated and taught under close supervision of faculty mentor. Student instructor and faculty mentor must generate proposal and have approval of the Biological Sciences Program to offer a BSCI238 STIC. BSCI238 cannot be applied to the degree requirements of any biological sciences major.
**Repeatable to:** 5 credits if content differs.

**BSCI258 College Park Scholars Internship (1-3 Credits)**
Credit to be determined by CPS Director. Must be completed by end of sophomore year.
**Restriction:** For College Park Scholars - Life Sciences students only.
**Repeatable to:** 6 credits if content differs.
**Additional Information:** Course not acceptable towards in Biological Sciences, Chemistry, or Biochemistry.

**BSCI279 Supplemental Study (1-3 Credits)**
Research or special study to complement a course taken previously which is not fully equivalent to current departmental requirements. Credit according to work done.
**Prerequisite:** Permission of CMNS-Biological Sciences UG Program.
**Repeatable to:** 6 credits.

**BSCI283 Principles of Microbiology (4 Credits)**
What makes microorganisms genetically, physiologically, and biochemically unique among organisms in the tree of life? An introduction to microorganisms designed for science majors. Genetic principles underlying microbial abilities; microbial structure-function relationships; metabolism, physiology, and ecology of microorganisms; interactions between microorganisms (including pathogens) and their hosts.
**Prerequisite:** BSCI222.
**Restriction:** Must be in a major within Biological Sciences; or permission of CMNS-Cell Biology & Molecular Genetics.
**Credit Only Granted for:** BSCI223 or BSCI283.
**Additional Information:** Priority given to BSCI, BCHM and CHEM majors.

**BSCI289 Off-Campus Internship (1-3 Credits)**
Elective credit for formally established off-campus research internship. Permission of Director of Outreach required.
**Prerequisite:** Permission of CMNS-Biological Sciences UG Program.
**Repeatable to:** 5 credits if content differs.
**Additional Information:** Course not acceptable toward major requirements in the Biological Sciences.

**BSCI300 Strategies for Success (1 Credit)**
Students often face an increased emphasis on critical thinking, pressure from a typically higher credit hour load, and a faster pace of exposure to new material when moving from lower- to upper-level coursework. The Biological Sciences program designed this course to help all transfer students make successful transitions, both academically and socially, to the University of Maryland at Shady Grove.
**Restriction:** Must be in a major in USG-Universities at Shady Grove; and must be in Biological Sciences: Physiology & Neurobiology program.
**Credit Only Granted for:** BSCI300 or BSCI339R.
**Formerly:** BSCI339R.

**BSCI328 Special Topics in Entomology (1-4 Credits)**
Lectures, seminars, mini-courses and other special instruction in various entomological subjects.
**Repeatable to:** 6 credits if content differs.

**BSCI329 Instructional Assistance Practicum (1-3 Credits)**
Students serve as instructional assistants in selected undergraduate biology courses. Roles and responsibilities are determined on a course-specific basis and approved by the College Undergraduate Program Committee.
**Prerequisite:** Permission of CMNS-Biological Sciences UG Program.
**Repeatable to:** 9 credits if content differs.
**Additional Information:** Course not acceptable toward major requirements in the Biological Sciences.

**BSCI330 Cell Biology and Physiology (4 Credits)**
Biochemical and physiological mechanisms underlying cellular function. Properties of cells which make life possible and mechanisms by which cells provide energy, reproduce, and regulate and integrate with each other and their environment.
**Prerequisite:** Minimum grade of C- in CHEM131 and CHEM132. And minimum grade of C- in BSCI170 and BSCI171; or minimum grade of C- in BSCI105.
**Restriction:** Must not have completed BSCI230.
**Credit Only Granted for:** BSCI230 or BSCI330.
**Formerly:** BSCI230.

**BSCI333 Principles of Paleontology (4 Credits)**
A review of the theory, principles, and applications of Paleontology. A systematic overview of the morphology, evolution, and relationships of the major fossil-producing taxa.
**Prerequisite:** GEOL102; or (BSCI207 or BSCI392); or permission of CMNS-Geology department.
**Cross-listed with:** GEOL331.
**Restriction:** Permission of instructor is required of non-degree seeking students.
**Credit Only Granted for:** GEOL331 or BSCI333.

**BSCI334 Mammalogy (3 Credits)**
Introduction to the biology of mammals, including evolution, physiological, and behavioral specializations.
**Prerequisite:** Minimum grade of C- in BSCI207. And minimum grade of C- in BSCI160 and BSCI161; or minimum grade of C- in BSCI106.

**BSCI335 Mammalogy Laboratory (1 Credit)**
Lab and field techniques for the study of mammals, focusing on their identification, anatomy, histology, spatial distribution, ecology, and behavior.
**Prerequisite:** Minimum grade of C- in BSCI160 and BSCI161; or minimum grade of C- in BSCI106. And minimum grade of C- in BSCI207; and must have completed or be concurrently enrolled in BSCI334.

**BSCI337 Biology of Insects (4 Credits)**
An overview of the biology, evolution and diversity of insects and their relatives. Insect morphology, physiology, behavior and ecology; the impact of insects on humanity and the management of pest insect populations; assembly of an insect collection is required.
**Prerequisite:** BSCI160 and BSCI161; or BSCI106; or permission of CMNS-Entomology department.

**BSCI338 Special Topics in Biology (1-4 Credits)**
Lectures, seminars, mini-courses and other special instruction in various biological subjects.
**Repeatable to:** 9 credits if content differs.

**BSCI339 Selected Topics in Biology (1-4 Credits)**
Lectures, seminars, and other selected instruction courses in various biological subject matter.
**Prerequisite:** Permission of CMNS-Biology department.
**Repeatable to:** 9 credits if content differs.

**BSCI342 Biology of Reproduction (3 Credits)**
The biology of the reproductive system with emphasis on mammals and, in particular, on human reproduction. Hormone actions, sperm production, ovulation, sexual differentiation, sexual behavior, contraception, pregnancy, lactation, maternal behavior and menopause.
**Prerequisite:** BSCI170 and BSCI171; or BSCI105; or permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies; or permission of CMNS-Biological Sciences UG Program.
**Cross-listed with:** WGSS326.
**Credit Only Granted for:** BSCI342, WMST326 or WGSS326.
**Formerly:** WMST326.

**BSCI343 Cellular Mechanisms of Aging and Disease (3 Credits)**
Explore how alterations in normal cellular and molecular processes lead to both aging and a variety of non-infectious human diseases currently plaguing our society. Students will read, analyze, and discuss current primary and secondary literature in the field of cell biology and biomedicine.
**Prerequisite:** Minimum grade of C- in BSCI330.
**Credit Only Granted for:** BSCI339I or BSCI343.
**Formerly:** BSCI339I.

**BSCI348 Special Topics in Cell Biology and Molecular Genetics (1-3 Credits)**
Presentation and discussion of special subjects in the field of cell biology and molecular genetics. A maximum of three credit hours of BSCI348 may be applied to the BSCI major.
**Repeatable to:** 8 credits.
**Additional Information:** A maximum of 8 credits of any BSCI348 course(s) can be applied to one or more undergraduate degrees. Any credits completed beyond the first 8 will be included in the total earned credits and factored into the GPA but not applied to any undergraduate degree.

**BSCI353 Principles of Neuroscience (3 Credits)**
Principles of nervous system function, ranging from molecular and cellular basis of neuron function through nervous system integration.
**Prerequisite:** 1 course with a minimum grade of C- from (BSCI207, BSCI330).
**Corequisite:** PHYS122, PHYS142, or PHYS132.
**Credit Only Granted for:** BSCI353 or NEUR306.
**Additional Information:** Credit cannot be applied to the requirements of any Neuroscience Major.

**BSCI355 Neurobiology of Extraordinary Senses (3 Credits)**
From the polarization of light in the sky, to the Earth's magnetic field-- we are surrounded by a universe of invisible cues. Organisms as diverse as bacteria, birds, insects, and fish rely on these hidden stimuli to navigate, communicate and forage. We will explore the organization and function of the extraordinary sensory systems that allow organisms to detect these cues. We will consider both the environmental and evolutionary context within which these sensory systems must function, and the history behind key discoveries in each system. Readings will include primary scientific literature and book chapters. Students will give in-depth presentations on a pre-selected topic, and discuss readings each week in a journal club-style format.
**Prerequisite:** Minimum grade of C- in BSCI353 or NEUR306.
**Credit Only Granted for:** BSCI355, BIOL708J or NACS728I.

**BSCI357 Neurobiology of Chemosensory Systems (3 Credits)**
Chemosensation is essential for all forms of life, orchestrating several physiological processes, such as feeding, sexual behaviors, and body homeostasis. This course will review the function of chemosensory systems, including olfaction, gustatory and central chemoreception, among others. Through lectures and discussion of papers, we will examine the cell biology, systems neuroscience, and evolutionary aspects in these chemosensory systems.
**Prerequisite:** Minimum grade of C- in BSCI353 or NEUR306.
**Credit Only Granted for:** BSCI339D, BSCI357, BIOL708Q, or NACS728J.
**Formerly:** BSCI339D.

**BSCI358 Special Topics in Biological Sciences at Shady Grove (1-4 Credits)**
Elective credit designed to allow undergraduate students to partake in focused academic experiences, to gain exposure to emerging issues, or to learn specialized content not represented in the main curriculum.
**Restriction:** Must be a Biological Sciences-Shady Grove major.
**Repeatable to:** 12 credits if content differs.
**Additional Information:** Credit cannot be applied to the requirements of any Biological Sciences Major.

**BSCI360 Principles of Animal Behavior (3 Credits)**
Study of animal behavior with emphasis on its evolution and function. Topics include genetic basis of behavior, communication, aggression, foraging, cooperation, mate selection, and relevance for conservation.
**Prerequisite:** BSCI160 and BSCI161; or BSCI106. And BSCI170 and BSCI171; or BSCI105. And BSCI222.

**BSCI361 Principles of Ecology (4 Credits)**
Basic principles of population, community, and ecosystem ecology. Use of these principles to predict possible consequences of human-caused changes in the environment and to understand the level of uncertainty of those predictions.
**Prerequisite:** BSCI160 and BSCI161; or BSCI106. And (MATH130, MATH136, or MATH140).

**BSCI363 The Biology of Conservation and Extinction (3 Credits)**
Ecology, evolutionary biology, and paleontology will be applied to the study of conservation, species invasions, and extinction.
**Prerequisite:** Minimum grade of C- in BSCI361.

**BSCI364 Conservation Biology Lab (1 Credit)**
Understanding and applying principles, practices and common tools of conservation biology. Synthesizing and applying ecological and socioeconomic knowledge to conservation issues.
**Prerequisite:** Must have completed or be concurrently enrolled in BSCI363.
**Credit Only Granted for:** BSCI338Q or BSCI364.
**Formerly:** BSCI338Q.

**BSCI370 Principles of Evolution (3 Credits)**
Understanding evolutionary processes in a natural and human environment, including adaptation; DNA sequence, protein, and genome evolution; evolution of developmental mechanisms; mechanisms of evolutionary change (mutation, natural selection, drift); epidemiology; coevolution and biological control; speciation; comparative methods; extinction and conservation; human evolution.
**Prerequisite:** Minimum grade of C- in BSCI160, BSCI161, and BSCI222 .

**BSCI373 Natural History of the Chesapeake Bay (3 Credits)**
Consideration of the major groups of organisms associated with the Chesapeake Bay and current issues that determine humans' present and future uses for the Chesapeake and its biota.
**Cross-listed with:** ENST373.
**Credit Only Granted for:** BSCI373 or ENST373.

**BSCI374 Mathematical Modeling in Biology (4 Credits)**
Students will learn empowering mathematical techniques through the understanding of biological models. Models are chosen from a variety of biological disciplines. Mathematical skills that will be developed along the way include: solving non-linear difference equations, eigenvector analysis, and the implementation of these algorithms as computer models.
**Prerequisite:** MATH131, MATH136, or MATH141.
**Cross-listed with:** HLSC374.
**Credit Only Granted for:** BSCI374, BSCI474, or HLSC374.
**Formerly:** BSCI474.
**Additional Information:** The HLSC374 version of this course is restricted to students in the Honors College Integrated Life Sciences program.

**BSCI378H Cell Biology and Molecular Genetics Department Honors Seminar (1 Credit)**
Required seminar for all students participating in departmental honors research program.

**BSCI379 Cell Biology and Molecular Genetics Department Research (1-3 Credits)**
This course is arranged to provide qualified majors an opportunity to pursue research problems under the supervision of a faculty member of the department.
**Prerequisite:** Permission of CMNS-Biological Sciences UG Program or Cell Biology & Molecular Genetics department.
**Repeatable to:** 8 credits.
**Additional Information:** A maximum of 8 credits of any version of BSCI379 can be applied to one or more undergraduate degrees. Any research credits completed beyond the first 8 will be included in the total earned credits and factored into the GPA but not applied to any undergraduate degree.

**BSCI379H Cell Biology and Molecular Genetics Department Honors Research (1-4 Credits)**
Student should consult program guidelines. Research project carried out under guidance of faculty advisor.

**BSCI381 Molecular Neuroethology (3 Credits)**
The brain generates a tremendous variety of behaviors, but how it achieves these feats remains largely unknown. Genetics and molecular tools yield fundamental insights into how the brain senses its environment and determines an appropriate course of action. This course will describe modern genetic manipulations (eg, CRISPR editing) and neuronal interventions (e. g., optogenetics), and discuss the quantification of behavioral outputs. Course consists of lectures plus readings and group discussions of primary scientific literature.
**Prerequisite:** Minimum grade of C- in BSCI222; and minimum grade of C- in BSCI353 or NEUR306.
**Credit Only Granted for:** BSCI339W, BSCI381, or BIOL709W.
**Formerly:** BSCI339W.

**BSCI389 Entomology Department Research (1-3 Credits)**
Credit to be determined by the department. A maximum of 8 credits of any version of BSCI389 can be applied to one or more undergraduate degrees. Any research credits completed beyond the first 8 will be included in the total earned credits and factored into the GPA but not applied to any undergraduate degree.
**Prerequisite:** Permission of CMNS-Biological Sciences UG Program.
**Repeatable to:** 8 credits if content differs.

**BSCI392 Biology of Extinct Animals (3 Credits)**
A survey of extinct animals that have few, if any, direct living descendants. The principles governing the functional design of animals will be used to infer life styles for extinct, and frequently bizarre, organisms.
**Prerequisite:** BSCI160 and BSCI161; or BSCI106.
**Cross-listed with:** GEOL391.
**Credit Only Granted for:** GEOL391 or BSCI392.

**BSCI393 Biology of Extinct Animals Laboratory (1 Credit)**
An overview of the techniques used in paleobiological reconstructions of extinct animals.
**Prerequisite:** Must have completed or be concurrently enrolled in BSCI392.
**Cross-listed with:** GEOL392.
**Credit Only Granted for:** GEOL392 or BSCI393.

**BSCI394 Vertebrate Form and Function (3 Credits)**
Comparative functional anatomy of vertebrates in the context of adaptation to their environments. The vertebrate body and its systems will be considered in terms of structure, physiology, evolution, and embryonic development.
**Prerequisite:** BSCI160 and BSCI161; or BSCI106. And BSCI170 and BSCI171; or BSCI105. And (BSCI207 or BSCI330).

**BSCI398H Biology Department Honors Seminar (1 Credit)**
Required seminar for all students participating in departmental honors research program.

**BSCI399 Biology Department Research (1-3 Credits)**
Research and/or integrated reading in biology under the direction and close supervision of a member of the faculty.
**Prerequisite:** Permission of the Biology Department.
**Restriction:** Minimum cumulative GPA of 3.0.
**Repeatable to:** 8 credits if content differs.
**Additional Information:** A maximum of 8 credits of any version of BSCI399 may be applied to one or more undergraduate degrees. Any research credits completed beyond the first 8 will be included in the total earned credits and factored into the GPA but not applied to any undergraduate degree.

**BSCI399H Biology Department Honors Research (1-2 Credits)**
A laboratory research problem; required each semester during honors participation and culminating in an honors thesis.

**BSCI400 Animal Diversity and Evolution (3 Credits)**
Focuses on deep-level diversity of animals and their evolutionary relationships, unique and repeated transitions in the course of animal evolution, and the evolutionary mechanisms that have shaped and continue to shape animal diversity. The course takes an integrative organismal approach to understanding animal evolution, considering morphology, development, physiology, life history, and ecology. It also explores how patterns of animal diversity have changed through time and the processes affecting animal diversity in our changing world.
**Prerequisite:** Minimum grade of C- in BSCI160 and BSCI207.

**BSCI401 Animal Communication (3 Credits)**
Examining the mechanisms by which animal produce and receive signals in each sensory modality; and quantifying the type and amount of information conveyed in signals and how animals attend to such information.
**Prerequisite:** BSCI160 and BSCI161; or BSCI106. And must have completed one semester of physics; and must have completed one semester of organic chemistry.
**Recommended:** A course in animal behavior or biopsychology.
**Credit Only Granted for:** BSCI401, BSCI338W or BIOL708W.
**Formerly:** BSCI338W.

**BSCI403 Biology of Vision (3 Credits)**
An upper level undergraduate course on the physical, molecular, and neural basis of vision.
**Prerequisite:** Minimum grade of C- in BSCI207, NEUR306, or BSCI353.
**Recommended:** BSCI222.

**BSCI404 Cell Biology from a Biophysical Perspective (3 Credits)**
An approach to cell biology by focusing on mechanisms and unifying physical paradigms. It will not assume a great deal of factual biological knowledge, but will expect a background that prepares students to think mechanistically and quantitatively.
**Prerequisite:** BSCI330.
**Recommended:** PHYS121 and PHYS122; or completion of PHYS131 and PHYS132 recommended. Jointly offered with BIOL704, BIPH704.
**Credit Only Granted for:** BSCI338O, BSCI404, BIOL704, BIOL708O, or BIPH704.
**Formerly:** BSCI338O.

**BSCI405 Population and Evolutionary Genetics (3 Credits)**
Genetic variation within a population provides the basis for future evolution as well as a record of past evolution. The genomics revolution provides data on this variation that, together with mathematical models, allow us to read this record to reconstruct evolutionary trajectories. Examples will focus on hominin and pathogen evolution. In the lab, students will use models to explore how genetic variation (allele frequencies) changes over time and space.
**Prerequisite:** Minimum grade of C- in BSCI222; and 1 course with a minimum grade of C- from (MATH131, MATH136, MATH141). Jointly offered w ith BIOL709.
**Credit Only Granted for:** BSCI405, BSCI339J, or BIOL709C.
**Formerly:** BSCI339J.

**BSCI406 Membranes and Biological Interfaces (3 Credits)**
An interdisciplinary approach to membrane biology, starting with the physical chemistry of interfaces and model systems and continuing into transport, excitability, and signaling. The course is oriented toward students with broad backgrounds in biology and biophysics. Success in the course will come from a background that prepares students to think mechanistically and quantitatively rather than having substantial factual biological knowledge.
**Prerequisite:** Minimum grade of C- in BSCI330.
**Recommended:** PHYS122; or PHYS132; or (PHYS260 and PHYS261).
**Credit Only Granted for:** BSCI339R, BSCI406, or BIOL709R.
**Formerly:** BSCI339R.

**BSCI407 Behavioral Genetics (3 Credits)**
Behavior represents an organism's most dynamic phenotype and allows an animal to respond immediately to both internal and external cues. We will explore the genetic and epigenetic mechanisms that underlie behavioral variation and the associated neurological, hormonal, and developmental pathways. We will examine modern approaches used to study behavioral genetics in model and non-model systems, and in humans. Using case studies, we will explore a range of complex phenotypes including those related to mating, parental care, aggression, circadian rhythm, locomotion, learning, anxiety, and addiction.
**Prerequisite:** Minimum grade of C- in BSCI222.

**BSCI410 Molecular Genetics (3 Credits)**
An advanced genetics course emphasizing the molecular basis of gene structure and function in the context of modern approaches to the genetics of humans and model organisms.
**Prerequisite:** BSCI222. And must have completed CHEM233; or (CHEM231 and CHEM232).

**BSCI411 Bioinformatics and Integrated Genomics (4 Credits)**
Computational methods for the study of biological data. Pairwise and multiple sequence alignment, genome assembly and annotation, RNAseq analysis, and structural bioinformatics. Introduction to UNIX, Python, and R in the context of biological sequence data. Previous computational experience is not necessary.
**Prerequisite:** Minimum grade of C- in BSCI222.
**Recommended:** BSCI410.
**Credit Only Granted for:** BSCI380 or BSCI411.
**Formerly:** BSCI380.

**BSCI412 Microbial Genetics (4 Credits)**
A laboratory/lecture based course that covers the fundamentals of mutation, mobile genetic elements and transmission genetics of microbial organisms using both classical and molecular approaches.
**Prerequisite:** BSCI222; and (BSCI223 or BSCI283).

**BSCI413 Recombinant DNA (3 Credits)**
An advanced course presenting the tools and procedures of genetic engineering. Theory and practical applications of recombinant DNA techniques to understanding eukaryotic gene structure and expression.
**Prerequisite:** BSCI330, BSCI223, or BSCI230; and BSCI222.
**Formerly:** ZOOL452.

**BSCI414 Recombinant DNA Laboratory (3 Credits)**
An advanced course offering hands-on experience in performing recombinant DNA experiments. All current molecular biology techniques used for cloning prokaryotic genes, analyzing the gene products, and modifying the genes will be performed. Techniques include isolation of DNA, use of restriction enzymes; cloning procedures, PCR analysis, and Southern hybridizations. Lecture material focuses on interpretation of results generated in the laboratory.
**Prerequisite:** BSCI222.

**BSCI415 Molecular Genetics Laboratory (3 Credits)**
Problem solving laboratory organized around extended projects that employ different approaches toward linking gene and function.
**Prerequisite:** Must have completed or be concurrently enrolled in BSCI410.
**Restriction:** Junior standing or higher.
**Credit Only Granted for:** BSCI348G or BSCI415.
**Formerly:** BSCI348G.

**BSCI416 Human Genetics (3 Credits)**
Approaches to human genetics and applications to biology and medicine focusing on specific human genetic topics using primary research papers as the main resource.
**Prerequisite:** Minimum grade of C- in BSCI410.
**Recommended:** BSCI330.

**BSCI417 Microbial Pathogenesis (3 Credits)**
Current research in microbial pathogenesis and the molecular and cellular basis of bacterial disease. Comprehensive overview of the molecular basis of pathogenesis with a focus on model microbial systems to illustrate mechanisms of disease pathogenesis. Topics covered: how microorganisms attach to and enter cells; how host cells are damaged by microbial products; how the host responds to invasion; and host-pathogen evolution.
**Prerequisite:** BSCI222; and (BSCI223 or BSCI283).
**Restriction:** Junior standing or higher.

**BSCI420 Cell Biology Lectures (3 Credits)**
Molecular and biochemical bases of cellular organization and function in eukaryotes.
**Prerequisite:** BSCI330, BSCI222, CHEM231, and CHEM232.
**Credit Only Granted for:** BSCI420 or BSCI421.

**BSCI422 Principles of Immunology (3 Credits)**
The immune system in health and disease. Presentation and analysis of the cellular and molecular processes that comprise the immune system.
**Prerequisite:** BSCI222.
**Recommended:** BSCI330; and (BSCI223 or BSCI283).
**Restriction:** Junior standing or higher.

**BSCI423 Immunology Laboratory (2 Credits)**
Current techniques for assessment of immune status and evaluation of the immune response, including monoclonal antibody production, Western blotting, cytokine assays, ELISA and flow cytometry.
**Prerequisite:** BSCI222.
**Corequisite:** BSCI422.
**Recommended:** BSCI223 or BSCI283.
**Restriction:** Junior standing or higher.

**BSCI424 Pathogenic Microbiology (4 Credits)**
The role of bacteria and fungi in the diseases of humans with emphasis upon the differentiation and culture of microorganisms, types of disease, modes of disease transmission, prophylactic, therapeutic, and epidemiological aspects.
**Prerequisite:** BSCI223 or BSCI283.

**BSCI425 Advanced Cell Biology Lab Practices (2 Credits)**
Experimental techniques used to study the molecular, structural, and spatial organization of plant and animal cells. Using a combination of in vitro assays aimed at analyzing macromolecular and subcellular components and in vivo analyses designed to reveal the inner architecture of a typical eukaryotic cell, students will have an opportunity to: improve some of the basic technical and conceptual skills they acquired in an introductory cell biology course; develop a more sophisticated understanding of the nature of experimental cell manipulation; and tackle the ongoing challenge of articulating their findings in both written and oral communication.
**Prerequisite:** Must have completed BSCI330, BSCI222, CHEM231, and CHEM232; and must have completed or be concurrently enrolled in BSCI420.
**Credit Only Granted for:** BSCI421, BSCI425, or BSCI348C.

**BSCI430 Developmental Biology (3 Credits)**
Structural, functional and regulatory events and mechanisms that operate during development to produce an integrated, multicellular organism composed of a multitude of differentiated cell types.
**Prerequisite:** BSCI222 and BSCI330.

**BSCI431 The Origin and Evolution of Nervous Systems (3 Credits)**
Explore how brains change through evolution along the animal tree of life. By comparing the nervous system structure and development across the animal kingdom, this course aims to reveal common designs and mechanisms that generate behavior, and to inform our understanding of how biology builds minds. Topics include the origins of neurons, the universal molecular patterning of brain development across invertebrates and vertebrates, the evolution of neurotransmission, comparative mechanisms of learning and memory, and what in our brain makes us human.
**Prerequisite:** Minimum grade of C- in NEUR200 or BSCI207.

**BSCI432 Systems View of Cell Biology (3 Credits)**
An integrated understanding of cell biology based upon reading of literature, discussion of new findings, and quantitative simulations. Exploration of ten topics including Heredity, Curing Diseases, and Synthesizing Life.
**Prerequisite:** BSCI330.

**BSCI433 Biology of Cancer (3 Credits)**
Causes and consequences of neoplastic transformations at the biochemical and cellular levels.
**Prerequisite:** BSCI222 and BSCI330; or permission of CMNS-Biological Sciences UG Program.

**BSCI436 RNA Biology and Therapeutics (3 Credits)**
The prediction of RNA structure from its sequence, and how the many types of cellular and viral RNAs function in and regulate cellular processes. Use of RNA-based drugs for controlling disease through RNA targeting, editing and vaccines.
**Prerequisite:** BSCI330.
**Recommended:** BSCI410.
**Restriction:** Must have junior standing or higher.

**BSCI437 General Virology (3 Credits)**
Discussion of the physical and chemical nature of viruses, virus cultivation and assay methods, virus replication, viral diseases with emphasis on the oncogenic viruses, viral genetics, and characteristics of the major virus groups.
**Prerequisite:** BSCI222; or permission of CMNS-Biological Sciences UG Program.
**Restriction:** Junior standing or higher.

**BSCI439 Undergraduate Advanced Selected Topics in Biology (1-4 Credits)**
Lectures, seminars, mini-courses, and other special instruction in various biological subjects.
**Repeatable to:** 9 credits if content differs.

**BSCI440 Mammalian Physiology (4 Credits)**
A study of the cardiovascular, hemopoietic, gastrointestinal, renal and respiratory systems. Chemical and endocrine regulation of physiological functions in mammals. Course does not count as an upper level lab for BIOL majors (see BSCI441).
**Prerequisite:** BSCI330; and (CHEM231 and CHEM232; or must have completed CHEM233). Or permission of CMNS-Biological Sciences UG Program.

**BSCI441 Mammalian Physiology Laboratory (2 Credits)**
Laboratory exercises in experimental mammalian physiology.
**Prerequisite:** Must have completed or be concurrently enrolled in BSCI440.

**BSCI442 Plant Physiology (4 Credits)**
An in-depth examination of the unique molecular and physiological principles necessary to understand how plants grow and respond to the environment at the cellular and organismal levels. Plants evolved unique metabolism and survival strategies, so students should be prepared to enter a world that may be new to them.
**Prerequisite:** Minimum grade of C- in BSCI170 and BSCI171; or minimum grade of C- in PLSC201; and minimum grade of C- in CHEM231 and CHEM232; or minimum grade of C- in CHEM237.
**Cross-listed with:** PLSC400.
**Credit Only Granted for:** BSCI442 or PLSC400.

**BSCI443 Microbial Physiology (3 Credits)**
Microbial cellular and population growth. Fermentation metabolism, physiology of anaerobiosis, and energy conservation and transformation in bacterial membranes. Efficiency of energy utilization for growth. Membrane structure and transport. Bacterial motility and chemotaxis. Regulation of bacterial chromosome replication, RNA and protein synthesis. Control of metabolic pathways. Bacterial stress responses. Antimicrobials.
**Prerequisite:** Minimum grade of C- in BSCI223 or BSCI283; and minimum grade of C- in BCHM461 or BCHM462.

**BSCI446 Neural Systems (3 Credits)**
Neural development, followed by sensory, motor and integrative system organization in the central nervous system.
**Prerequisite:** Minimum grade of C- in BSCI353 or NEUR306.

**BSCI447 General Endocrinology (3 Credits)**
Functions and dysfunctions of the endocrine system with special reference to mammals.
**Prerequisite:** BSCI330, CHEM241, and CHEM242.

**BSCI450 Mammalian Systems Physiology (3 Credits)**
A study of the cardiovascular, hemopoietic, gastrointestinal, renal, and respiratory systems. Chemical and endocrine regulation of physiological functions in mammals.
**Prerequisite:** Minimum grade of C- in BSCI330; and minimum grade of C- in CHEM233 or both CHEM231 and CHEM232.
**Credit Only Granted for:** BIOL708M, BSCI338L, BSCI440, or BSCI450.

**BSCI451 Mammalian Systems Physiology Laboratory (2 Credits)**
Laboratory exercises in experimental mammalian physiology.
**Prerequisite:** Must have completed with a minimum of C- or be concurrently enrolled in either BSCI440 or BSCI450.
**Credit Only Granted for:** BSCI441 or BSCI451.
**Formerly:** BSCI441.

**BSCI452 Diseases of the Nervous System (3 Credits)**
An advanced course covering the neuroanatomy, function, and organization of the nervous system and its implication for pathology and disease.
**Prerequisite:** Minimum grade of C- in BSCI330; and must have completed with a minimum of C- or be concurrently enrolled in either BSCI353 or NEUR306.
**Credit Only Granted for:** BSCI452, BIOL708E, or NACS728N.

**BSCI454 Neurobiology Laboratory (2 Credits)**
Basic neuroanatomical techniques, intracellular and extracellular recordings of electrical potentials from nerve and muscle.
**Prerequisite:** Minimum grade of C- in BSCI330; must have completed or be concurrently enrolled in BSCI353; and must have completed or be concurrently enrolled in PHYS122, PHYS132, or PHYS142.
**Credit Only Granted for:** BSCI454, BSCI455, NEUR405, or PSYC401.

**BSCI455 Neuroscience Laboratory (3 Credits)**
Students will utilize neurophysiological techniques to examine fundamental principles of neurons and neural circuits. This course will reinforce content from prerequisite NEUR courses. Students will also strengthen skills in experimental design and scientific writing.
**Prerequisite:** NEUR306 or BSCI353; and PHYS132.
**Recommended:** NEUR305.
**Cross-listed with:** NEUR405.
**Credit Only Granted for:** PSYC401, NEUR405, BSCI455 or BSCI454.

**BSCI456 Advanced Cellular Neuroscience (3 Credits)**
Readings and discussion in cellular and molecular mechanisms underlying synaptic structure/function relationships, synaptic potentiation/depression, dendritic integration, homeostatic plasticity, and nervous system development including neurogenesis, axon guidance, synaptogenesis, and activity-dependent development among other topics.
**Prerequisite:** Minimum grade of C- in BSCI353 or NEUR306.
**Recommended:** Minimum grade of C- in BSCI440 or another upper-level neuroscience course.
**Jointly offered with:** NACS644.
**Restriction:** Permission of CMNS-Biology department.
**Credit Only Granted for:** BSCI339X, BSCI456, or NACS644.
**Formerly:** BSCI339X.

**BSCI460 Plant Ecology (3 Credits)**
The dynamics of populations as affected by environmental factors with special emphasis on the structure and composition of natural plant communities, both terrestrial and aquatic.
**Prerequisite:** Minimum grade of C- in BSCI361.

**BSCI462 Population Ecology (3 Credits)**
Theory of population growth and regulation, life tables, and theory of competition and predation, evolution in ecological settings, community structure and dynamics.
**Prerequisite:** MATH130, MATH136, or MATH140; and BSCI361.

**BSCI464 Microbial Ecology (3 Credits)**
Interaction of microorganisms with the environment, other microorganisms and with higher organisms. Roles of microorganisms in the biosphere. Microorganisms and current environmental problems.
**Prerequisite:** BSCI223 or BSCI283; and (CHEM271 or CHEM277); or permission of the instructor.

**BSCI467 Freshwater Biology (4 Credits)**
Biology and ecology of freshwater invertebrates in lotic and lentic habitats, their adaptation to aquatic life, their function in aquatic ecosystems, and their relationship to environmental deterioration. Laboratory will include field trips, demonstrations, and identifications.
**Prerequisite:** BSCI160.

**BSCI471 Molecular Evolution (3 Credits)**
Patterns of DNA sequence variation within and between species, caused by nucleotide changes and the movement of transposable elements. Theories of molecular evolution, such as the neutral theory. Molecular clock hypothesis: its importance as a practical empirical tool in molecular genetics and systematics and its theoretical foundation.
**Prerequisite:** BSCI222; or permission of CMNS-Biology department.

**BSCI473 Marine Ecology (3 Credits)**
Courses in evolution and animal behavior are strongly recommended. A detailed analysis of the evolutionary ecology of marine invertebrates; emphasis on testing of theories and on current literature.
**Prerequisite:** BSCI207.

**BSCI475 Sexual Selection in Nature (3 Credits)**
Sexual selection drives some of the most spectacular, if not bizarre, traits in nature. We will explore how organisms select and compete for mates and fertilization success, and how this powerful and pervasive evolutionary force shapes sexual traits and regulates species boundaries. We will focus on the key theories in the field and discuss recent and classic research papers. This is a student-directed class: course topics and materials will be selected based on student interests and involvement. On occasion, experts in the field will be invited to class to discuss their research.
**Prerequisite:** Minimum grade of C- in BSCI207; or permission of instructor.
**Recommended:** BSCI360 or BSCI370. Jointly offered with BIOL708.
**Credit Only Granted for:** BSCI338X, BSCI475, or BIOL708X.
**Formerly:** BSCI338X.

**BSCI476 Evolutionary Genomics (3 Credits)**
Application of genomics to understanding evolutionary processes, including genome evolution, organismal evolution, genomic diversity across the tree of life, human evolution and disease. Relevant concepts of evolutionary genetics and genome biology will be covered.
**Prerequisite:** Minimum grade of C- in BSCI222.
**Recommended:** BSCI370.
**Credit Only Granted for:** BSCI476 or BIOL708C.

**BSCI477 Ecology and Evolution of Infectious Disease (3 Credits)**
Parasites are a ubiquitous feature of ecological communities, and can strongly impact population growth, extinction risk, community structure and biodiversity, as well as pose serious risks to human health and food security. This course will cover basic principles of disease ecology, including; the diversity of parasitic organisms and transmission modes, host and pathogen traits for defense and infection, mathematical models of disease spread, the impacts of disease at different ecological scales, and host-parasite co-evolution. In the latter half of the course we will apply these basic concepts to current real-world problems in disease ecology including emerging infectious diseases in humans, wildlife and agriculture. We will use examples from plants, animals and humans to about an equal degree. This course will have a strong quantitative focus, and completion of the math series is recommended.
**Prerequisite:** C- or better in either BSCI370 or BSCI361 and either MATH136 or MATH140.
**Credit Only Granted for:** BSCI477 or BIOL708D.

**BSCI480 Arthropod Form and Function (4 Credits)**
Survey of the morphological, systematic and physiological diversity of the phylum Arthropoda.
**Prerequisite:** Permission of CMNS-Entomology (AGNR).

**BSCI481 Insect Diversity and Classification (4 Credits)**
A summary of the morphology, systematics and evolution of insects and techniques for their collection, preservation and identification. Emphasis is placed on the diversity of insects in North America, particularly Maryland and adjacent regions. An insect collection is required.
**Prerequisite:** BSCI337.

**BSCI482 Insect Physiology and Molecular Biology (4 Credits)**
Physiological and biochemical functions of insects. Insect endocrinology, neurobiology, sensory physiology, integument and molting, development and metamorphosis, immunity, metabolism and related topics.
**Prerequisite:** BSCI337.

**BSCI483 Insects, Pathogens, and Public Health (3 Credits)**
Mosquito- and tick-borne disease transmission poses significant challenges to human health and well-being globally, and is on the rise in North America. Arthropod parasites and the pathogens they transmit to humans and animals will be introduced, and the public health significance of these arthropods will be examined. The ecology and behavior of vectors in relation to disease transmission will be emphasized.
**Prerequisite:** BSCI207.

**BSCI487 IPM: Science-Based Decision Making for Sustainable Pest Management (4 Credits)**
Long-term global food security requires a sustainable increase in agricultural productivity to ensure the availability and accessibility of safe and nutritious food. Agricultural pests reduce global food production and threaten its sustainability. This course explores sustainable pest management in agroecosystems using the integrated pest management (IPM) paradigm. IPM is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and non-target organisms, and the environment.
**Prerequisite:** BSCI160 and BSCI161.
**Restriction:** Must have earned a minimum of 90 credits.
**Credit Only Granted for:** BSCI487 or ENTM609.

**BSCI488 Summer Biology Institutes (1-8 Credits)**
**Prerequisite:** Permission of CMNS-Biological Sciences UG Program.
**Repeatable to:** 12 credits if content differs.

**BSCI494 Animal-Plant Interactions (3 Credits)**
Theoretical, conceptual and applied aspects of evolutionary and ecological interactions between plants and animals. This course gives an overview of major ideas, historical controversies, and current research on animal-plant relationships. We will explore the mechanisms and evolution of plant defenses and animal counter-adaptations, behavioral ecology and interactions across trophic levels, the role of microbial communities in mediating interactions, and how these interactions color human experience through food and medicine. The course will have a blended lecture/discussion format and will include field walks to collect herbivory data and observe animal-plant interactions.
**Prerequisite:** BSCI160 and BSCI161; or BSCI106.

**BSCI497 Insect Pests of Ornamentals and Turf (4 Credits)**
The recognition, biology and management of insects and mites injurious to ornamental shrubs, trees, greenhouse crops, and turf. Emphasis on Integrated Pest Management (IPM).
**Prerequisite:** BSCI160 or BSCI337; or (PLSC110 and PLSC111) or (PLSC112 and PLSC113).

# BSCV - CIVICUS

**BSCV181 Civicus Student and the University (1 Credit)**
Knowledge and skills designed to utilize CIVICUS to enhance the college experience and preparation for civic engagement.
**Restriction:** Freshman standing; and must be in the Civicus program.

**BSCV182 Civicus and Service-Learning (1 Credit)**
Students will examine domestic societal issues and their national, regional, and local dimensions from political, economic, and policy perspectives. Students will work with local direct service non-profit organizations.
**Prerequisite:** BSCV191.
**Restriction:** Must be in the Civicus program.

**BSCV191 Introduction to Civicus (3 Credits)**
Students will explore a range of ways to think about what it means to fully engage in communities, conduct research and scholarly inquiry to explore pressing contemporary problems, consider the roots of social issues, and explore ways to create positive social change on a school, local, state, and national level.
**Restriction:** Must be in the CIVICUS Program.

**BSCV301 Leadership in a Multicultural Society (3 Credits)**
A study and application of skills, historical context, theories, and concepts for constructive leadership in a pluralistic, multicultural, and diverse society. Social science methodologies and theories will provide the structure for the study of contemporary social problems, civil society issues, and leadership practices.
**Prerequisite:** BSCV182.
**Restriction:** Must be in the CIVICUS program.

**BSCV302 Civicus Capstone (3 Credits)**
Capstone course required for CIVICUS citation. Through a supervised internship, students gain hands-on experience in an area related to civic engagement, which gives students authentic experiences that help them develop hard and soft skills to support their community engagement efforts and their work toward social good.
**Prerequisite:** BSCV301.
**Restriction:** Sophomore standing or higher. Must be in the CIVICUS Program.

**BSCV309 Civicus Seminar (1 Credit)**
Review and analysis of contemporary social issues.
**Restriction:** Must be in the CIVICUS program.
**Repeatable to:** 5 credits if content differs.

# BSGC - Global Communities

**BSGC398 BSGC Experiential Learning in Global Communities: Global Service (3 Credits)**
Experiential learning is an integral element of the Global Communities program. Students will gain an understanding of social issues in marginalized communities, engage in service-learning, and develop an action plan for civic engagement in a diverse global society.
**Restriction:** Must be in Global Communities Living-Learning program. By permission only (BPO).
**Repeatable to:** 6 credits if content differs.
**Additional Information:** - Open to students enrolled in the Global Communities Living-Learning Program.

# BSOS - Behavioral and Social Sciences

**BSOS138 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**BSOS180 Introduction to Data Management (1 Credit)**
Learn to read data, clean data sets, and perform other vital functions (mainly in Excel). Students will develop fundamental skills that will ease the transition into future coursework (or a career) in data science or analytics. Designed for students who have minimal background in Excel or computer software.
**Credit Only Granted for:** BSOS180 or BSOS188B.
**Formerly:** BSOS188B.
**Additional Information:** Recommended for BSOS majors who need additional support for their disciplinary stats or research methods sequence.

**BSOS188 Selected Topics in the Behavioral and Social Sciences (1-3 Credits)**
Introductory selected topics course dealing with interdisciplinary issues related to the social sciences.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** EDCP108O or BSOS188A.

**BSOS201 Ensuring your Financial Future Through Stock Investing (3 Credits)**
Introduces students to investing and trading, with special emphasis on the field of technical analysis. Planning for one's financial future is a critical skill for all students. Students will learn how to evaluate companies using the investors.com website and the TC2000 stock charting program. Students will develop an idea of the risks and benefits of investing, establishing a savings strategy, opening an IRA, and strategically planning for future financial security. In addition to readings, lectures, and online videos, students will participate in virtual stock market trading exercises and manage a virtual account.
**Credit Only Granted for:** BSOS289I or BSOS201.
**Formerly:** BSOS289I.
**Additional Information:** No prior knowledge of the stock market or investing is expected or required.

**BSOS230 Introduction to Programming for the Social Sciences: Statistical Computing using R (1 Credit)**
R is an open-source programming language, specialized for statistical computing, and provides a variety of statistical and graphical techniques that might be relevant for any BSOS program, such descriptive statistics, linear and non-linear regression, text mining, image processing. The R language is increasingly often employed in advanced statistics and data analytics, offering a wide range of application packages for effective programming. This course introduces the R language and several powerful packages in form of lectures, worked-out examples, and group exercises.
**Restriction:** Must not have completed BSOS330; and must be enrolled in a BSOS major. Or permission of instructor.
**Additional Information:** Students do not need any prior experience using R.

**BSOS231 Introduction to Programming for the Social Sciences: Python (1 Credit)**
Python has become the most powerful programming language in advanced statistics and data analytics. It includes expansive packages for data handling and processing, including the latest developments in machine learning, and offers Integrated Development Environments (IDE) for code development, testing, debugging, and graphical representation. In addition, python is deployed on virtually all high performance computing clusters, taking advantage of multi-processing, large memory, and GPU enhanced computing environments. This course offers a thorough introduction to python and those packages that are fundamental to data processing and analysis, image processing, natural language processing, machine learning.
**Restriction:** Must not have completed BSOS331; and must be enrolled in a BSOS major. Or permission of instructor.
**Additional Information:** Students do not need any prior experience using Python.

**BSOS233 Data Science for the Social Sciences (3 Credits)**
An introduction to modern methods of data analysis for social scientists. This course emphasizes teaching students who have no previous coding experience how to analyze data and extract meaning in a social science context. Students will gain critical programming skills and learn inferential thinking through examples and projects with real-world relevance.
**Prerequisite:** MATH 107 (or higher) or STAT 100.
**Restriction:** Must be in a major in the College of Behavioral and Social Sciences or the College of Information Studies; or permission of instructor.

**BSOS238 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**BSOS240 The Problem of Prejudice: Overcoming Impediments to Global Peace and Justice (3 Credits)**
What is prejudice? How are our prejudices formed? What similarities and differences are there between various forms of prejudice across race, gender, nationality, politics, religion, among others? What is the relationship between prejudice and conflict? What is the role of prejudice in thinking about issues of peace and justice? How can we better understand the role that prejudice and discrimination have in a globalizing world? What can we learn from a scientific basis of knowledge about the causes of prejudice? This course will survey interdisciplinary scholarly research and popular cultural conversations about the root causes of prejudice and discrimination. You are expected to examine empirical evidence toward formulating your own views about the impact that all forms of prejudice impose on the human condition and the role it has played in your own life. Based on research evidence, the course encourages the search for solutions to the blight of prejudice.
**Credit Only Granted for:** BSOS240, HNUH228Z, or HONR279L.
**Formerly:** HNUH228Z and HONR279L.

**BSOS248 Leadership Seminar I (1-6 Credits)**
A topics course in the behavioral and social sciences designed to develop student leaders with skills that will address important issues of the college and offers diverse viewpoints intended to challenge common perceptions of leadership, technology programs and communication.
**Repeatable to:** 9 credits.

**BSOS258 Leadership Practicum I (1-6 Credits)**
This course puts into practice the elements and skills learned in the seminar series that directly benefit the college.
**Repeatable to:** 9 credits.

**BSOS288 Special Topics in Behavioral and Social Sciences (1-3 Credits)**
Introductory special topics course focusing on an interdisciplinary topic related to behavioral and social sciences.
**Repeatable to:** 6 credits if content differs.

**BSOS308 Contemporary Issues: Interdisciplinary Approaches (3 Credits)**
An interdisciplinary analysis of current public policy issues of international, national and community import. Senior standing recommended.
**Recommended:** Must have Senior standing.
**Repeatable to:** 6 credits if content differs.

**BSOS326 Python Programming for the Social Sciences (3 Credits)**
Python has become the most powerful programming language in advanced statistics and data analytics. It includes expansive packages for data handling and processing, including the latest developments in machine learning, and offers Integrated Development Environments (IDE) for code development, testing, debugging, and graphical representation. This course offers a thorough introduction to Python and those packages that are fundamental to data processing and analysis.
**Prerequisite:** Minimum grade of C- in INST126 or BSOS233.
**Restriction:** Restricted to students in the Social Data Science major or by permission of the instructor.

**BSOS338 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**BSOS348 Leadership Seminar II (1-6 Credits)**
A topics course in the behavioral and social sciences designed to develop student leaders with advanced skills that will address important issues of the college and offers diverse viewpoints intended to challenge common perceptions of leadership, technology programs and communication.
**Repeatable to:** 9 credits.

**BSOS355 Social Sciences Internship Practicum (3 Credits)**
BSOS 355 is an internship course open to all majors. It will enable students to articulate and apply the scholarship from the discipline related to their specific internship placement into a real-work environment.
**Restriction:** Must have earned a minimum of 60 credits; and minimum cumulative GPA of 2.5; and must have completed at least 1 semester at UMD.
**Credit Only Granted for:** BSOS388I or BSOS355.
**Formerly:** BSOS388I.

**BSOS358 Leadership Practicum II (1-6 Credits)**
This course puts into practice the advanced skills and elements learned in the seminar series that directly benefit the college.
**Repeatable to:** 9 credits.

**BSOS361 Academic and Career Planning for Transfer Students in the College of Behavioral and Social Sciences (1 Credit)**
Students will utilize the resources of the Feller Center for Academic and Career Planning and TerrapinSTRONG to explore how their individual social identities and strengths contribute to building strong communities in personal, academic, and professional career spaces.
**Restriction:** Must be a first-semester transfer student in a College of Behavioral and Social Sciences major.
**Additional Information:** Intended for first semester transfer students in BSOS majors.

**BSOS385 Big-Data Analysis on the BSOS HPC Cluster (2 Credits)**
Social media are a primary source of information on social interaction and personal interests. High-performance computing (HPC) is employed to search for hidden pattern and unknown correlations using advanced machine-learning algorithms available in python and R packages. The main steps of Natural Language Processing and big-data analysis are being worked out, from examining random samples to analyzing large data sets via in-memory Monte-Carlo applications and neural networks.
**Prerequisite:** Students must have completed a least one college-level statistics course.
**Recommended:** A working knowledge of python or R is expected.
**Restriction:** Students must be enrolled in a BSOS major; or permission of instructor.
**Credit Only Granted for:** BSOS385, BSOS685, or BSOS688B.

**BSOS386 Experiential Learning (3-6 Credits)**

**BSOS388 Behavioral and Social Sciences Special Topics (1-3 Credits)**
Advanced special topics course focusing on an interdisciplinary topic related to the Behavioral and Social Sciences.
**Repeatable to:** 6 credits if content differs.

**BSOS399 Directed Study in Behavioral and Social Sciences (1-6 Credits)**
Guidance for the advanced student capable of interdisciplinary study on special projects under the supervision of the Assistant Dean for Student Affairs.

**BSOS438 Special Topics in Study Abroad IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**BSOS448 Teaching Assistant Practicum (1-6 Credits)**
Supervised practicum for teaching assistants for BSOS/UNIV courses.
**Repeatable to:** 9 credits.

# BSST - Terrorism Studies

**BSST200 Terrorism Studies (3 Credits)**
Theories explaining the formation of terrorist groups and the motivations behind terrorist behavior, building upon theories from social psychology, sociology, political science, criminology, and history. The course examines the different levels of analysis for terrorism studies, the different methods scholars utilize for research, and the most prominent datasets in the field of homeland security. In addition, this course provides a review of various terrorist groups and ideological movements. The course concludes with an introduction to the different approaches to counter violent extremism and terrorism.
**Credit Only Granted for:** BSST330 or BSST200.
**Formerly:** BSST330.

**BSST240 Understanding The Principles and Perils of CBRN Weapons (3 Credits)**
Explores the 'dark side' of scientific applications. Students will gain an understanding of CBRN Weapons, through the exploration of the scientific method, and certain fundamental principles of chemistry, biology, and physics. Students will also learn how to test hypotheses, use basic statistics, interpret results, and apply their new knowledge through discussions of practical applications in the domains of public health, emergency management, epidemiology, and threat assessment. Bringing these fields together in one class will allow students to better understand the use of and threat from CBRN weapons in terrorism.
**Additional Information:** If taken in the same term as BSST241 these courses will count for General Education Natural Sciences Lab.

**BSST241 Understanding the Principles and Perils of CBRN Weapons (Lab) (1 Credit)**
An exploration of the threat of Chemical, Biological, Radiological, and Nuclear (CBRN) weapons aimed to provide students with a basic, multidisciplinary, natural science foundation in chemistry, biology, and physics.
**Corequisite:** BSST240.
**Additional Information:** This is an optional 1-credit lab course offered in coordination with BSST240. If taken in the same term as BSST240 these courses will count for General Education Natural Sciences Lab.

**BSST258 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**BSST288 Special Topics in Terrorism Studies (3 Credits)**
A special topics course for students in the Global Terrorism Minor program. Topics that may be offered are Psychology of Terrorism; Development of Counterterrorism Policies and Programs; Terrorism and Popular Culture; Terrorism and the Media; International Perspective on Terrorism and Counterterrorism (Education Abroad); The Evolution of Hezbollah; Terrorism and Small Wars; Political Islam in the West.
**Repeatable to:** 9 credits if content differs.

**BSST331 Innovations in Counterterrorism (3 Credits)**
Explore the manners in which states respond to terrorist incidents and the threat of terrorism through counterterrorism approaches and strategies. We will examine counterterrorism responses from law enforcement, military, and the intelligence community. This will include discussions about policy decisions made in response to both terrorist attacks and the threat of terrorism. Counterterrorism strategies this course will cover include deterrence, interdiction, and legal efforts to combat terrorism, including terrorist financing and online recruitment. The course is divided into four general parts. First, we will provide an overview of government counterterrorism options and review key concepts. Second, we will examine law enforcement responses to terrorism including efforts to counter cyberterrorism, social media recruitment, and terrorist financing online. Third, we will focus on military responses to attacks conducted by terrorist groups, including deterrence strategies, targeted strikes, and covert operations. Last, we will review the challenges and complexities of counterterrorism approaches, including the ethical, moral, and legal dilemmas.
**Restriction:** Must be in the Terrorism Studies minor program.

**BSST334 States of Emergency (3 Credits)**
Students will explore the manner in which crises unfold from the perspective of a variety of emergency response disciplines, including: emergency management, law enforcement, intelligence analysis, cyber analysis, risk communication, health and human services, and emergency psychiatry/psychology. Students will participate in a semester-long simulation of an unfolding terrorist attack.

**BSST335 Innovations in Countering Violent Extremism (3 Credits)**
Introduces students to novel innovations in the development of Countering Violent Extremism (CVE) programs. CVE is a realm of policy, programs, and interventions designed to prevent individuals from engaging in violence associated with radical political, social, cultural, and/or religious ideologies. Unlike counterterrorism strategies that often focus on targeting and disrupting terrorist plots, CVE focuses on radicalization prevention through engagement and intervention with communities. CVE also focuses on deradicalization and rehabilitation of former extremists. Throughout the course, students will work in groups to develop their own innovative CVE programs, rather than merely learn about CVE through lectures.
**Credit Only Granted for:** BSST335 or BSST338V.
**Formerly:** BSST338V.
**Additional Information:** It is recommended that BSST335 be taken after, or concurrent with, BSST330.

**BSST337 Ideology and Social Conditions in the Making of Terrorism (3 Credits)**
This class focuses on the relations of ideology with social conditions in the historical context of the Middle East and North Africa in order to explain the process of the rise and domination of Islamist extremism and suicide terrorism as a dominant oppositional discourse in the region. Resting on a cognitive conception of ideology, this class focuses on the process in which ideological discourses shape the making of the terrorist mind.
**Credit Only Granted for:** BSST338G or BSST337.
**Formerly:** BSST338G.

**BSST338 Special Topics in Terrorism Studies (3 Credits)**
A special topics course for students in the Global Terrorism Minor program. Topics that may be offered are Psychology of Terrorism; Development of Counterterrorism Policies and Programs; Terrorism and Popular Culture; Terrorism and the Media; International Perspective on Terrorism and Counterterrorism (Education Abroad); The Evolution of Hezbollah; Terrorism and Small Wars; Political Islam in the West.
**Repeatable to:** 9 credits if content differs.

**BSST340 Oral Communication for National Security Careers (3 Credits)**
Students will discuss perspectives on strategic communication and national security, while discussing and practicing public speaking skills and developing proficiency in three genres of security-related briefings. Students will work with the technical, scientific, and/or specialized data, vocabularies, processes, and products of the academic disciplines and/or fields of expertise relevant to national and international security careers.
**Credit Only Granted for:** BSST340 or BSST338E.
**Formerly:** BSST338E.

**BSST358 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**BSST370 Financing Terror and Hate (3 Credits)**
This course will discuss terrorist financial activities, initiatives focused on countering those financial activities, and sanctions policy. This course approaches these topics through various techniques including, structured analytic tools, such as weighted ranking methods, scenario trees, causal flow diagramming, hypothesis testing, utility analysis, as well as game theory and logic will be incorporated into the course to provide students a better framework to form analytic judgments. At the end of the course, students will have gained a solid foundational understanding of the financing and counter-financing of terrorists.
**Credit Only Granted for:** BSST370 or BSST338Z.
**Formerly:** BSST338Z.

**BSST371 Far-Right Extremism: Violent Ideologies and Actions (3 Credits)**
Introduces students to the ideologies, organizing patterns, and actions within far-right extremism. This will include a focus on movements within white supremacism, anti-government extremism, male supremacy, homophobia, and anti-immigrant extremism. Using as examples specific violent extremists and groups on the far-right, we will study key theories explaining extremist radicalization, recruitment, engagement, and mobilization.
**Credit Only Granted for:** BSST338R or BSST371.
**Formerly:** BSST338R.

**BSST372 Terrorist Hostage Taking (3 Credits)**
Examines different forms of hostage taking, drawing on theory and research from across a range of different fields, including international relations, political science, criminology, psychology, sociology and economics. We will consider these events in terms of how they are similar, how they differ and what they are designed to achieve. This course provides insights into the complicated nature of terrorism via hostage taking in order to broaden student understanding of current events. This course also gives students practical experience in finding and coding data, and studying complex human behaviors.

**BSST373 Analyzing Terrorism: Simulations, Wargaming, and Strategies of Security (3 Credits)**
Introduces students to novel, applied methods to study terrorism and security, including simulations, wargaming exercises, and red teaming. This course assumes no prior experience with these methods. Throughout the course, students will complete activities to understand the behavior of militant groups and develop security strategies to counter violent non-state actors.
**Credit Only Granted for:** BSST338J or BSST373.
**Formerly:** BSST338J.

**BSST374 Political Assassinations (3 Credits)**
Course topics include political assassinations, their consequences, and the possible means for their prevention, from profiling assassins to protection of potential targets. Research on political assassinations has developed from many different disciplines and so we will be drawing on theory and research from across a range of different fields, including international relations, political science, criminology, psychology, sociology and economics. In each lecture we will review the scholarly issues associated with political assassinations as well as considering the practical, counter attack challenges faced by security and law enforcement.

**BSST375 Violent Non-State Actors in Latin America: Terrorism, Cartels, and Crime (3 Credits)**
Examines why non-state actors resort to violence and crime, what tactics and strategies they use, how they fund their existence, and what can be done to counter them. Throughout the course, students will be introduced to many different types of violent non-state actors, including terrorist organizations and criminal organizations. This will all be done in the context of Latin America and students will gain an in-depth understanding of the problems that plague individual countries, as well as which issues afflict the region as a whole.
**Credit Only Granted for:** BSST338L or BSST375.
**Formerly:** BSST338L.

**BSST376 Al-Qaeda, the Islamic State, and Global Jihadist Movements (3 Credits)**
Provides an in-depth overview into global jihadist movements, with specific focus on the terrorist groups known as al-Qaeda and the Islamic State of Iraq and the Levant. In an effort for students to come to a common understanding of key terms that will be discussed throughout the course, a session will be devoted to understanding key concepts and terms related to Islamic history. The course will also examine the Islamic State's connection and ultimate divorce from al-Qaeda. The course will all examine group finances, as well as the rise of affiliates. The course will also explore the use of foreign fighters and social media, as well as global responses to these movements and groups.
**Credit Only Granted for:** BSST338V or BSST376.
**Formerly:** BSST338V.

**BSST377 Applying Theory to the Practice of Countering Terrorism (1 Credit)**
Focuses on current events related to terrorism and counterterrorism, as they are discussed in mass media, and the implications of those current events on the ethical and professional conduct of the counterterrorism community. Through a discussion-based seminar, students will bring current, terrorism-related events to classroom discussion, where they will consider the media-framed current events in relation to academic research. Students will be continually challenged to draw connections between terrorism-related events in the news and relevant academic research. Furthermore, this class will use vignettes based in current events to present students with real-world ethical dilemmas that those in the professional counterterrorism community and broader national security community have to confront.
**Recommended:** BSST330.
**Restriction:** Restricted to students enrolled in the Global Terrorism Minor (#BS07).
**Credit Only Granted for:** BSST327, BSST377, or BSST399K.
**Formerly:** BSST327.
**Additional Information:** It is recommended that this course be taken in the final semester in the minor program.

**BSST386 Experiential Learning in Terrorism Studies (1-5 Credits)**
This course will supplement student's experiential learning experience, or internship in the field of terrorism studies and homeland security with guided reflection on their experiences.

**BSST389 Internship in Terrorism Studies (1-6 Credits)**
Supplements student's experiential learning experience, or internship in the field of terrorism studies and homeland security, with guided reflection on their experiences.
**Restriction:** Must have earned a minimum cumulative GPA of 2.5.
**Repeatable to:** 9 credits.

**BSST398 Individual Study in Terrorism Studies II (1-3 Credits)**
An independent study course for START Students.
**Repeatable to:** 9 credits if content differs.

**BSST399 Individual Study in Terrorism Studies (1-3 Credits)**
An independent study course for students in the Global Terrorism Minor program.
**Repeatable to:** 9 credits if content differs.

**BSST458 Special Topics in Study Abroad IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

# CCJS - Criminology and Criminal Justice

**CCJS100 Introduction to Criminal Justice (3 Credits)**
Introduction to the administration of criminal justice in a democratic society, with emphasis on the theoretical and historical development of law enforcement. The principles of organization and administration for law enforcement; functions and specific activities; planning and research; public relations; personnel and training; inspection and control; direction; policy formulation.

**CCJS105 Introduction to Criminology (3 Credits)**
Criminal behavior and the methods of its study; causation; typologies of criminal acts and offenders; punishment, correction and incapacitation; prevention of crime.

**CCJS158 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**CCJS188 Topics in Criminology and Criminal Justice (3 Credits)**
Contemporary and emerging crimes and the response to them by criminal justice agencies. Emphasis is on the emergence of new forms of crimes or criminals.
**Prerequisite:** CCJS100 or CCJS105.
**Repeatable to:** 6 credits if content differs.

**CCJS200 Statistics for Criminology and Criminal Justice (3 Credits)**
Introduction to descriptive and inferential statistics, graphical techniques, and the computer analysis of criminology and criminal justice data. Basic procedures of hypothesis testing, correlation and regression analysis, and the analysis of continuous and binary dependent variables. Emphasis upon the examination of research problems and issues in criminology and criminal justice.
**Prerequisite:** CCJS100 or CCJS105; and 1 course with a minimum grade of C- from (STAT100, MATH107, MATH111, MATH120, MATH130, MATH135, MATH140).
**Restriction:** Must be in Criminology and Criminal Justice program; or permission of BSOS-Criminology & Criminal Justice department.

**CCJS225 Responses to Violence (3 Credits)**
What are the dimensions of violence in the United States and worldwide, and how has humanity responded to violence? Conflict is unfortunately resolved through violence in a number of settings. It ranges from interpersonal to international in its scope. This course investigates the strengths and weaknesses of a number of resolutions to reducing violence over the course of history using both state centered and informal control.

**CCJS226 Out of Lock Up: Breaking the Cycle (3 Credits)**
Offender reentry in the United States. Examination of experiences of prisoners during and after incarceration. Research on the experiences of special offending populations including females, juveniles, and young adults. Exploration of reentry challenges, historical trends, policy, and practice.

**CCJS230 Criminal Law in Action (3 Credits)**
Law as one of the methods of social control. Criminal law: its nature, sources and types; theories and historical developments. Behavioral and legal aspects of criminal acts. Classification and analysis of selected criminal offenses.
**Prerequisite:** CCJS100.

**CCJS234 Law of Criminal Investigation (3 Credits)**
General principles and theories of criminal procedure. Due process. Arrest, search and seizure. Recent developments. Study and evaluation of evidence and proof.
**Prerequisite:** CCJS100 and CCJS230.

**CCJS258 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**CCJS278 Special Topics in Criminology and Criminal Justice (3 Credits)**
Topics of special interest to undergraduates in criminology and criminal justice. Offered in response to student request and faculty interest. May be delivered online.
**Repeatable to:** 6 credits if content differs.

**CCJS288 Special Topics in Law and Justice (3 Credits)**
An analysis of recent developments in criminal law and their implications for criminal justice systems and research. Focus will be on Supreme Court decisions and legislative initiatives.
**Prerequisite:** CCJS105 and CCJS230.
**Repeatable to:** 6 credits if content differs.

**CCJS300 Criminological and Criminal Justice Research Methods (3 Credits)**
Introduction to the formulation of research questions covering crime and justice, research designs, data collection, and interpretation and reporting in criminological and justice-system settings.
**Prerequisite:** CCJS100 and CCJS105; and (PSYC200, CCJS200, ECON321, BMGT230, or SOCY201).

**CCJS301 Fundamentals in Criminal Justice (3 Credits)**
Provides an overview of the three major components of the American criminal justice system: police, courts, and corrections. Each component will be explored in its development over time as well as various issues surrounding each component. This course will also cover important issues that are relevant to current debates including race, reentry, technology and crime, juvenile justice, and future directions for criminal justice.
**Restriction:** Must be enrolled at The Universities at Shady Grove; and must be in the Criminal Justice minor; or by permission of department; and must not be in the Criminology and Criminal Justice major.

**CCJS310 Criminal Investigations (3 Credits)**
An introduction to modern methods used in detection, investigation, and solution of crime. Students will be taught basic and advanced investigative techniques utilized by law enforcement agencies. Analysis of actual cases will be used to demonstrate practical uses of these techniques.
**Prerequisite:** CCJS100 and CCJS230.

**CCJS315 Ethics in Criminal Justice (3 Credits)**
Introduces the study of ethics and ethical decision making as it is applied to the criminal justice system. Students will be introduced to consequential philosophers and their work, and will discuss those theories in terms of how decision making is applied in policing, courts, corrections, the juvenile system, victim services, and the medical system. There will be a special discussion of how ethical decision making intersects with racism, classism, and sexism in criminal justice. Students will be able to assess the intersections of race, gender, age, sexual orientation, ethnicity, and class and the way those identities impact ethical decision making of acts.
**Prerequisite:** CCJS100.
**Credit Only Granted for:** CCJS315 or CCJS498L.
**Formerly:** CCJS498L.

**CCJS318 Special Topics in Criminology & Criminal Justice (3 Credits)**
Special topics in various aspects of the field of criminology and criminal justice will be covered.
**Repeatable to:** 15 credits if content differs.

**CCJS320 Introduction to Criminalistics (3 Credits)**
An introduction to modern methods used in the detection, investigation and solution of crimes. Practical analysis of evidence in a crime laboratory, including fingerprints and other impressions, firearms ID and ballistics, hairs and fibers, document examination, and use of polygraph.
**Prerequisite:** CCJS100 and CCJS230.

**CCJS325 Slavery in the Twenty First Century: Combating Human Trafficking (3 Credits)**
What is human trafficking and how do we stop it? An introduction to the trafficking of human beings in its historical, legal, economic, political and social contexts. Scope of the global problem, different forms of human trafficking, and regional trends and practices. Roles of government, the international community and individual actors. Strategies to combat trafficking.

**CCJS330 Contemporary Criminological Issues (3 Credits)**
Topics may include career criminals, prison overcrowding, prediction, ecological studies of crimes, family and delinquency, entrepreneurship in criminal justice and criminology, and similar criminological problems.
**Prerequisite:** CCJS100 and CCJS105.

**CCJS331 Contemporary Legal Policy Issues (3 Credits)**
In-depth examination of selected topics. Criminal responsibility. Socio-legal policy alternatives with regard to deviance. Law enforcement procedures for civil law and similar legal problems. Admissibility of evidence. Representation. Indigent's right to counsel.
**Prerequisite:** CCJS100 and CCJS230.

**CCJS332 Major Transitions: From Undergraduate to Professional (1 Credit)**
This course is designed to assist criminology and criminal justice students explore career opportunities. Topics will include: graduate school, law school, career opportunities in federal, state, local, and public agencies, resume writing, and internships.
**Restriction:** Must be in Criminology and Criminal Justice program; and sophomore standing or higher.

**CCJS333 Navigating Your Future: Transforming Your Degree into your Career (3 Credits)**
Assists Criminology and Criminal Justice students in exploring and preparing for entering graduate school and/or the professional work world. Academic success and professional development in the criminal justice field will be emphasized. Specific topics covered in the course include graduate school options, the benefits of a social science degree, and careers in private industry, nonprofit organizations, and federal, state, and local agencies. Will also focus on job preparation skills including writing a resume, creating a cover letter, and preparing for an interview.
**Restriction:** Must be in the Criminology and Criminal Justice major (22091 and 2209L); or must be in the and Criminal Justice minor (#BS14) with 30 or more credits.
**Credit Only Granted for:** CCJS333 or CCJS498Q.
**Formerly:** CCJS498Q.

**CCJS340 Policing (3 Credits)**
Critical issues relating to policing. Topics include police discretion, role of police, use of force, misconduct, police research, administration, personnel, and etc.
**Prerequisite:** CCJS100.

**CCJS342 Corrections (3 Credits)**
Examination of the American correctional system. Identification of historical and contemporary themes, issues, and trends. Evaluation of correctional policies, practices and research.
**Prerequisite:** CCJS100.
**Restriction:** Must be in a major within the BSOS-Criminology & Criminal Justice department.
**Credit Only Granted for:** CCJS342 or CCJS452.

**CCJS345 Courts and Sentencing (3 Credits)**
Contemporary issues in the American court system such as prosecution, sentencing and punishment. Theoretical perspectives on courtroom decision-making integrated with empirical research. Courts and sentencing processes, including initial charging, pretrial detention and final sentencing outcomes. Innovations in courts and sentencing.
**Prerequisite:** CCJS100.
**Restriction:** Must be in a major within the BSOS-Criminology & Criminal Justice department.

**CCJS346 Domestic Violence (3 Credits)**
A thorough and critical examination of family violence. Topics include the historical background to family violence, methods of studying this serious issue, elder abuse, child abuse, the cultural factors involved in intimate partner violence, violence in same-sex relationships, and the criminal justice response to family violence. Although the course focuses on the American family, illustrations from other cultures are provided.
**Prerequisite:** CCJS100.
**Credit Only Granted for:** CCJS346 or CCJS498Y.
**Formerly:** CCJS498Y.

**CCJS352 Drugs and Crime (3 Credits)**
An analysis of the role of criminal justice in the control of drug use and abuse.
**Prerequisite:** CCJS100.

**CCJS358 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**CCJS359 Field Training in Criminology and Corrections (1-6 Credits)**
Supervised field training in public or private social agencies. Group meetings, individual conferences and written program reports.
**Restriction:** Permission of BSOS-Criminology & Criminal Justice department.
**Repeatable to:** 6 credits.

**CCJS360 Victimology (3 Credits)**
Overview of the history and theory of victimology. Analysis of victimization patterns with special emphasis on types of victims and crimes. The interaction between victims of crime and the criminal justice system with respect to the role of the victim and the services offered to the victim.
**Prerequisite:** CCJS105.

**CCJS370 Race, Crime and Criminal Justice (3 Credits)**
Role and treatment of racial/ethnic minorities in the criminal justice system. Course will provide students with historical and theoretical framework for understanding this dynamic.
**Prerequisite:** CCJS100.

**CCJS386 Experiential Learning (3-6 Credits)**
**Restriction:** Permission of BSOS-Criminology & Criminal Justice department; and junior standing or higher.

**CCJS388 Independent Reading Course in Criminology and Criminal Justice (3 Credits)**
Designed for the needs of honor students in criminology and criminal justice.
**Prerequisite:** CCJS100 and CCJS105.
**Restriction:** Must be in the Honors program.

**CCJS389 Independent Research in Criminology and Criminal Justice (1-6 Credits)**
Independent Research for CCJS Departmental Honors students.
**Prerequisite:** CCJS105.
**Restriction:** Must be in CCJS Honors Program.
**Repeatable to:** 6 credits if content differs.

**CCJS398 Law Enforcement Field Training (1-6 Credits)**
Supervised, structured and focused field training in law enforcement agencies.
**Restriction:** Permission of BSOS-Criminology & Criminal Justice department.
**Repeatable to:** 6 credits.

**CCJS399 Independent Study in Criminology and Criminal Justice (1-3 Credits)**
Integrated reading or research under direction and supervision of a faculty member.
**Restriction:** Permission of BSOS-Criminology & Criminal Justice department.
**Repeatable to:** 6 credits.

**CCJS405 Gangs (3 Credits)**
Provides students with a historical and contemporary examination of street and institutional gangs. We will address the nature and definition of gangs, types of gangs, and diversity of membership of gangs, theoretical explanations, and criminal and deviant behavior. In addition, we will analyze law enforcement responses, intervention and prevention strategies, and public policy issues.
**Prerequisite:** CCJS100 and CCJS105.
**Credit Only Granted for:** CCJS405 or CCJS498G.
**Formerly:** CCJS498G.

**CCJS418 Seminar in Criminology and Criminal Justice (3 Credits)**
Selected topics of interest in the field of Criminology and Criminal Justice will be covered.
**Repeatable to:** 18 credits if content differs.

**CCJS428 Special Topics in Criminology and Criminal Justice (3 Credits)**
Topics in various aspects of the field of criminology and criminal justice will be covered.
**Repeatable to:** 18 credits if content differs.

**CCJS440 Security Administration (3 Credits)**
Designed to introduce students to the complex issues of Security Administration and the critical terrorism issues facing the nation. Emphasis is placed on understanding the historical and contemporary issues effecting U.S. Counterterrorism Policy. It also explores the challenges facing today's security administrators including: ethics, classified information, intelligence, terrorist organizations and incidents, physical and personnel security, transportation and border security issues.
**Prerequisite:** CCJS100 and CCJS340.
**Credit Only Granted for:** CCJS440 or CCJS498Z.
**Formerly:** CCJS498Z.

**CCJS444 Advanced Law Enforcement Administration (3 Credits)**
The structuring of manpower, material, and systems to accomplish the major goals of social control. Personnel and systems management. Political controls and limitations on authority and jurisdiction.
**Prerequisite:** CCJS100 and CCJS340.

**CCJS450 Advanced Juvenile Delinquency (3 Credits)**
Examination of juvenile delinquency in the United States. Nature and extent of juvenile delinquency, historical approaches, sociological and criminological theories and research, social contexts including the institutions of families, schools, and peers, and social responses. Prevention, punishment, and treatment programs, both within and outside of the juvenile justice and criminal justice systems.
**Prerequisite:** CCJS105 and CCJS300.
**Credit Only Granted for:** CCJS350 or CCJS450.

**CCJS451 Crime and Delinquency Prevention (3 Credits)**
Methods and programs in prevention of crime and delinquency.
**Prerequisite:** CCJS105 and CCJS300.

**CCJS453 White Collar and Organized Crime (3 Credits)**
Definition, detection, prosecution, sentencing and impact of white collar and organized crime. Special consideration given to the role of federal law and enforcement practices.
**Prerequisite:** CCJS300; and (CCJS350 or CCJS105).

**CCJS454 Contemporary Criminological Theory (3 Credits)**
Examination of the main theoretical accounts that explain the underlying causes of criminal behaviors. Explore how individual choices, socialization experiences, biological factors and social structure affect criminal behaviors.
**Prerequisite:** CCJS300 and CCJS105.

**CCJS455 Dynamics of Planned Change in Criminal Justice I (3 Credits)**
An examination of conceptual and practical issues related to planned change in criminal justice. Emphasis on the development of innovative ideas using a research and development approach to change.
**Prerequisite:** CCJS300.
**Restriction:** Permission of BSOS-Criminology & Criminal Justice department.

**CCJS458 Special Topics in Study Abroad IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**CCJS460 Victim Advocacy (3 Credits)**
Introduces the practice of victim advocacy as a profession. Students will develop an understanding of the impact of crime on the victim, and how crime impacts the path of the victim through the criminal justice and other administrative processes. A special emphasis of the course will be on introducing the students to different contexts of victim advocacy, e.g. system-based, campus-based, military-based, and community-based, as well as special topics impacting the profession of victim advocacy, e.g. grief, death notification, child protection, violence intervention, and trauma therapy. Students will also develop an understanding about how race, gender, age, sexual orientation, and ethnicity impact the way in which victims are offered and receive advocacy in different systems.
**Prerequisite:** CCJS100.
**Recommended:** CCJS360.
**Credit Only Granted for:** CCJS460 or CCJS498T.
**Formerly:** CCJS498T.

**CCJS461 Psychology of Criminal Behavior (3 Credits)**
Biological, environmental, and personality factors which influence criminal behaviors. Biophysiology and crime, stress and crime, maladjustment patterns, psychoses, personality disorders, aggression and violent crime, sex-motivated crime and sexual deviations, alcohol and drug abuse, and criminal behavior.
**Prerequisite:** CCJS105 and CCJS300.

**CCJS489 Honors Thesis Research (3 Credits)**
Designed for students completing their honors thesis.
**Prerequisite:** CCJS100 and CCJS105.
**Restriction:** Limited to CCJS Departmental Honors students.
**Repeatable to:** 6 credits.

**CCJS498 Selected Topics in Criminology and Criminal Justice (3 Credits)**
Topics of special interest to advanced undergraduates in criminology and criminal justice. Offered in response to student request and faculty interest.
**Repeatable to:** 6 credits if content differs.

# RELX - Religious Studies Education Abroad

**RELX101 Religion in a Pluralistic World (3 Credits)**
Examines the issue of religious pluralism, explores the relationship between religious truth and (in)tolerance, and examines how different religious traditions treat religious truth claims in regard to the social and political context in which they operate. Examines the interferences between the religious and the socio-political realm, both historically and in the context of the contemporary world.
**Credit Only Granted for:** RELS269F or RELX101.
**Formerly:** RELS269F.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

# CHBE - Chemical and Biomolecular Engineering

**CHBE100 Exploring ChBE (1 Credit)**
Overview of the specializations and career paths available in chemical and biomolecular engineering. Academic planning, policies and resources will be covered including introduction to undergraduate research, study abroad, internship and co-op opportunities as well as chemical engineering student groups. A peer mentoring program will enable students to interact with successful upper-class chemical engineering students and build their chemical engineering peer network.
**Prerequisite:** Permission of instructor; and permission of ENGR-Chemical & Biomolecular Engineering department.
**Restriction:** Must be in a major within the ENGR-Chemical & Biomolecular Engineering department.

**CHBE101 Introduction to Chemical and Biomolecular Engineering (3 Credits)**
Introduction to methods of chemical engineering calculations and analysis. Stoichiometric relations, material and energy balances, and behavior of gases, vapors, liquids and solids. Analytical and computer methods.
**Prerequisite:** CHEM135; or students who have taken courses with comparable content may contact the department.
**Corequisite:** MATH141.
**Restriction:** Must be in Engineering: Chemical program; or permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE101 or ENCH215.
**Formerly:** ENCH215.

**CHBE250 Computer Methods in Chemical Engineering (3 Credits)**
Algorithm development and application of software to the analysis of chemical engineering problems. File management and editing, graphics and numerical methods. Use of spreadsheets, statistics/math software and process simulators for the design of chemical process equipment.
**Prerequisite:** CHBE101; and must have completed or be concurrently enrolled in MATH241.
**Restriction:** Must be in a major within the ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE250 or ENCH250.
**Formerly:** ENCH250.

**CHBE301 Chemical and Biomolecular Engineering Thermodynamics I (3 Credits)**
Principles of thermodynamics and their application to engineering problems. First and second laws of thermodynamics, properties of gases, liquids and solids, phase equilibrium, flow and non-flow systems, energy conversion, production of work from heat, thermodynamic analysis of processes, equilibrium stage operations and the thermodynamics of chemically reacting systems.
**Prerequisite:** CHBE101; and must have completed or be concurrently enrolled in CHBE250 and MATH241.
**Restriction:** Must be in Engineering: Chemical program; and permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** ENCH300 or CHBE301.
**Formerly:** ENCH300.

**CHBE302 Chemical and Biomolecular Engineering Thermodynamics II (3 Credits)**
Contemporary trends in chemical engineering thermodynamics that bridge the gap between fundamentals and applications. Thermodynamic analysis of non-ideal and structured systems; such as complex fluids, strongly fluctuating and nanoscale systems, dissipative systems, biosystems, and systems under extreme conditions.
**Prerequisite:** CHBE301.
**Corequisite:** CHBE250.
**Restriction:** Must be in a major within ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE302 or ENCH400.
**Formerly:** ENCH400.

**CHBE333 Chemical Engineering Seminar (1 Credit)**
To develop oral communication skills through a series of class presentations of current chemical engineering topics.
**Restriction:** Junior standing; and must be in a major within ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE333 or ENCH333.
**Formerly:** ENCH333.

**CHBE369 Teaching Experiences in Chemical Engineering (1-2 Credits)**
Students will obtain pedagogical experience by assisting with the teaching of undergraduate courses in Chemical and Biomolecular Engineering.
**Restriction:** Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department.
**Repeatable to:** 8 credits.

**CHBE409 Undergraduate Honors Seminar (1 Credit)**
Students will attend and write summaries of departmental seminars, along with professional development activities
**Restriction:** Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and Permission of ENGR-Chemical & Biomolecular Engineering department; and Must be in the Chemical Engineering Honors Program.
**Repeatable to:** 2 credits.

**CHBE410 Statistics and Design of Experiments (3 Credits)**
An introduction to probability, statistics, and design of experiments for chemical engineers.
**Prerequisite:** Minimum grade of C- in CHBE250, MATH241, and MATH246.
**Restriction:** Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE410 or ENCH476.
**Formerly:** ENCH476.

**CHBE422 Chemical and Biomolecular Engineering Transport Phenomena I (3 Credits)**
Principals of fluid dynamics as applied to model development and process design. Mass, momentum and energy conservation. Statics and surface tension. Equation of Continuity and Navier-Stokes Equation with application to laminar flow. Dimensional analysis. Macroscopic balances, Bernoulli Equation and friction factors with application to turbulent flow.
**Prerequisite:** Minimum grade of C- in CHBE101, CHBE250, MATH241, and MATH246.
**Restriction:** Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE422 or ENCH422.
**Formerly:** ENCH422.

**CHBE424 Chemical and Biomolecular Engineering Transport Phenomena II (3 Credits)**
Principles of mass and heat transfer as applied to model development and process design. Species continuity equation with application to diffusion, and convection in laminar flow. Macroscopic balances and mass transfer coefficients with application to turbulent flow. Microscopic equation of energy with application to heat conduction, and convection in laminar flow. Macroscopic energy balance and heat transfer coefficients with application to turbulent flow. Heat exchanger design.
**Prerequisite:** CHBE422.
**Corequisite:** CHBE302.
**Restriction:** Must be in Engineering: Chemical program; and permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE424 or ENCH424.
**Formerly:** ENCH424.

**CHBE426 Chemical and Biomolecular Separation Processes (3 Credits)**
Separation by stages operations. Rate dependent separation processes. Design application in distillation, gas absorption, liquid extraction, drying, adsorption and ion exhange.
**Corequisite:** CHBE302; and CHBE424.
**Restriction:** Must be in Engineering: Chemical program; and permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE426 or ENCH426.
**Formerly:** ENCH426.

**CHBE437 Chemical and Biomolecular Engineering Laboratory (3 Credits)**
Application of chemical engineering process and unit operation principals in small-scale semi-commercial equipment. Data from experimental observations are used to evaluate performance and efficiency of operations. Emphasis on correct presentation of results inreport form.
**Prerequisite:** CHBE424, CHBE426, and CHBE440.
**Restriction:** Must be in a major within ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE437 or ENCH437.
**Formerly:** ENCH437.

**CHBE440 Chemical Kinetics and Reactor Design (3 Credits)**
Fundamentals of chemical reaction kinetics and their application to the design and operation of chemical reactors. Reaction rate theory, homogeneous reactions and catalysis electrochemical reactions. Catalytic reactor design.
**Prerequisite:** Minimum grade of C- in CHBE301, MATH241, and MATH246.
**Restriction:** Must be in Engineering: Chemical program; and permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE440 or ENCH440.
**Formerly:** ENCH440.

**CHBE442 Chemical and Biomolecular Systems Analysis (3 Credits)**
Dynamic response applied to process systems. Goals and modes of control, Laplace transformations, analysis and synthesis of simple control systems, closed loop response, dynamic testing.
**Prerequisite:** CHBE424 and CHBE426.
**Credit Only Granted for:** CHBE442 or ENCH442.
**Formerly:** ENCH442.

**CHBE444 Process Engineering Economics and Design I (3 Credits)**
Principles of chemical engineering economics and process design. Equipment sizing and costing. Economic evaluation of projects. Flowsheet synthesis. Introduction to flowsheet simulators and concepts of flowsheet optimization. Synthesis of Heat Exchanger Networks and Distillation Sequences.
**Prerequisite:** CHBE424, CHBE426, and CHBE440.
**Restriction:** Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE444 or ENCH444.
**Formerly:** ENCH444.

**CHBE446 Process Engineering Economics and Design II (3 Credits)**
Application of chemical engineering principles for the design of chemical processing equipment. Representative problems in the design of chemical plants will be the focus of this capstone design class. Comprehensive reports are required.
**Prerequisite:** CHBE442 and CHBE444.
**Restriction:** Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE446 or ENCH446.
**Formerly:** ENCH446.

**CHBE451 Photovoltaics: Solar Energy (3 Credits)**
The emphasis of the class is on developing a conceptual understanding of the device physics and manufacturing processes of crystalline and thin-film photovoltaic cells, and to develop elementary computational skills necessary to quantify solar cell efficiency. The class material includes detailed, system-level energy balances necessary to understand how solar energy fits into the complete energy generation, conversion, and storage picture. Quantitative comparisons of PV technology to solar chemical conversion processes and biofuels are made.
**Jointly offered with:** CHBE651.
**Restriction:** Permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** ENCH468L, CHBE451 or CHBE651.
**Formerly:** ENCH468L.

**CHBE452 Introduction of Machine Learning in Chemical Engineering (3 Credits)**
Introduction of data science and machine learning approaches to modern problems in chemical engineering and materials science. This course develops data science approaches, including their foundational mathematical and statistical basis, and applies these methods to data sets of limited size and precision. Methods for regression and clustering will be developed and applied, with an emphasis on validation and error quantification. Techniques that will be developed include linear and nonlinear regression, clustering and logistic regression, dimensionality reduction, unsupervised learning, and artificial neural networks. These methods will be applied to a range of engineering problems, including conducting polymers, stretchable conductors, organic synthesis, and quality control in manufacturing.
**Recommended:** Basic knowledge of chemical engineering, materials science, ordinary differential equations, and Python is desirable.
**Jointly offered with:** CHBE652.
**Restriction:** Permission of Department or Instructor.
**Credit Only Granted for:** CHBE452 or CHBE652.

**CHBE453 Applied Mathematics and Distributive Parameter Systems (3 Credits)**
Mathematical techniques applied to the analysis and solution of chemical engineering problems. Use of differentiation, integration, differential equations, partial differential equations and integral transforms. Application of infinite series, numerical and statistical methods.
**Credit Only Granted for:** CHBE453 or ENCH453.
**Formerly:** ENCH453.

**CHBE454 Chemical Process Analysis and Optimization (3 Credits)**
Application of mathematical models to the analysis and optimization of chemical processes. Models based on transport, chemical kinetics and other chemical engineering principles will be employed.
**Credit Only Granted for:** CHBE454 or ENCH454.
**Formerly:** ENCH454.

**CHBE455 Model Predictive Control (3 Credits)**
Empirical model identification from process data. Step and impulse response models. Linearization of nonlinear first principles models. Single variable Model Predictive Control. Robustness with respect to modeling error. MPC based tuning of PID controllers. Feedforward control. Multi-input multi-output processes. Multi-loop decentralized control. Centralized multivariable Model Predictive Control via on-line optimization.
**Credit Only Granted for:** CHBE455 or ENCH455.
**Formerly:** ENCH455.

**CHBE457 Design and Processing of Polymers for Biomedical Devices (3 Credits)**
Provides a foundation for understanding the use of various materials in medical applications. We will discuss design principles, based on biological context for drug delivery, diagnosis of disease, imaging applications, tissue engineering, among other relevant topics. The course will cover nanomedicine approaches (lipids, polymers, gold nanoparticles, carbon nanotubes, etc.), as well as scaffolds for tissue engineering and regenerative medicine. We will discuss advantages, challenges, and recent advances in the field. The course will highlight the importance of rational engineering when designing products to be used to treat and diagnose disease.
**Prerequisite:** MATH246; and CHEM231; and (CHBE301, ENMA461, or BIOE232).
**Recommended:** Knowledge of basic fluid dynamics: CHBE422/BIOE331 or equivalent.
**Restriction:** Permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** BIOE453, CHBE457, or ENMA425.

**CHBE468 Research (1-3 Credits)**
Investigation of a research project under the direction of a faculty member. Comprehensive reports are required.
**Restriction:** Permission of Chemical and Biomolecular Engineering Department; and must be third or fourth year student; and must have minimum GPA of 3.0; and must have successfully completed all lower level engineering, science and mathematics courses for the major.
**Repeatable to:** 6 credits.
**Formerly:** ENCH468.

**CHBE469 Special Projects (1-3 Credits)**
Special project under the direction of a faculty member. Comprehensive reports are required.
**Restriction:** Permission of Chemical and Biomolecular Engineering Department; and must be third or fourth year student; and must have minimum GPA of 3.0; and must have successfully completed all lower level engineering, science and mathematics courses for the major.
**Repeatable to:** 6 credits if content differs.

**CHBE470 Colloid and Interface Science (3 Credits)**
Introduction to colloidal systems and interfacial science. Topics include preparation, stability and coagulation kinetics of colloidal suspensions. Introduction to DLVO theory, electrokinetic phenomena, colloidal aggregation, interfacial phenomena, double layer theory, surface chemistry. Discussion of interfacial thermodynamics and interfacial forces for solid-liquid interfaces. Applications to nanomaterial synthesis, nanomaterial and polymer self-assembly, protein-protein interactions, and protein aggregation will be discussed.
**Prerequisite:** CHBE424 and CHBE426.
**Jointly offered with:** CHBE670.
**Restriction:** Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** ENCH648F, CHBE470 or CHBE670.

**CHBE471 Particle Science and Technology (3 Credits)**
Particles are everywhere. We breathe them, eat them, and use them to make many non-particulate materials. Knowledge of particle science and technology is important for manufacturing, for occupational health and safety, as well as environmental considerations. In this multidisciplinary course, the focus will be on the study of science and technology relevant to multiphase systems consisting of solid and/or liquid particles surrounded by a gas. These topics fall loosely under the headings of powder and aerosol technology. Team design projects will be an integral component.
**Prerequisite:** Knowledge of undergraduate engineering thermodynamics, and transport phenomena; knowledge of numerical methods for solving systems of ordinary differential equations.
**Restriction:** Must be in a major within ENGR-Chemical & Biomolecular Engineering department; or permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE471 or ENCH471.
**Formerly:** ENCH471.

**CHBE472 Control of Air Pollution Sources (3 Credits)**
Sources and effects of air pollutants, regulatory trends, atmospheric dispersion models, fundamentals of two-phase flow as applied to air pollution and air pollution control systems, design of systems for control of gases and particulate matter.
**Jointly offered with:** CHBE672.
**Restriction:** Permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE472, CHBE672 or ENCH672.

**CHBE474 Biopharmaceutical Process Development and Manufacturing (3 Credits)**
Covers the fundamental steps involved in process development and manufacturing of biopharmaceuticals. An overview of different classes of biopharmaceuticals as well as manufacturing requirements for clinical development and regulatory approval will be provided. In depth coverage of manufacturing steps including cell culture, purification and formulation as well as drug product manufacturing, analysis and stability will be covered. Scientific literature will be used to highlight current challenges and novel solutions in each step of the manufacturing process. Scale up considerations, GMP requirements and process economics will also be introduced.
**Prerequisite:** BIOE120; and permission of instructor.
**Jointly offered with:** CHBE674.
**Restriction:** Permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE474, BIOE489T, ENCH648D or CHBE674.

**CHBE475 Ethics in Science and Engineering (3 Credits)**
Ethical issues in science and engineering and their resolutions are examined. The main topics will be ethics and scientific truth (including issues of proper data analysis, proper data presentation, and record-keeping), ethics and other scientists and engineers (including issues of attribution, confidentiality, conflicts of interest, mentoring, and inclusion of under-represented groups), ethics and the practice of engineering (including responsibilities of engineers to clients, ecological issues, and conflicts of interest), and ethics and society (including funding priorities, moral issues, and human and animal subjects). Class meetings will be organized around discussions, case studies, and student reports. The course is aimed at postdoctoral students, graduate students and advanced undergraduate students who wish to ponder the important contemporary questions about the ethics of how science and engineering get done.
**Credit Only Granted for:** CHBE475 or ENCH475.
**Formerly:** ENCH475.

**CHBE476 Molecular Modeling Methods (3 Credits)**
Statistical mechanics will be introduced to give the fundamental background for atomic to mesoscale molecular modeling. Classical atomic-level simulations methods (Monte Carlo and Molecular Dynamics) and the procedures to develop intra- and intermolecular potentials will be covered. This course will also discuss the theory and application of coarse-grained molecular simulations, mesoscale simulations and other modern simulation techniques. A broad range of applications will be included throughout the semester, e.g., phase behavior of small molecules, kinetics, and biophysics.
**Jointly offered with:** CHBE476.
**Restriction:** Permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** ENCH648P, CHBE476 or CHBE676.
**Formerly:** ENCH468P.

**CHBE477 Mesoscopic and Nanoscale Thermodynamics (3 Credits)**
Interdisciplinary course primarily for graduate and senior undergraduate students from engineering or science departments. New emerging technologies deal with bio-membrane and gene engineering, microreactor chemistry and microcapsule drug delivery, micro-fluids and porous media, nanoparticles and nanostructures, supercritical fluid extraction and artifical organs. Engineers often design processes where classical thermodynamics may be insufficient, e.g., strongly fluctuating and nanoscale systems, or dissipative systems under conditions far away from equilibrium.
**Prerequisite:** A prior course in classical thermodynamics.
**Jointly offered with:** CHBE477.
**Restriction:** Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE477, ENCH468Q or CHBE677.
**Formerly:** ENCH468Q.

**CHBE480 Bionanotechnology: Physical Principles (3 Credits)**
Physics at nano/micro scales. Biomolecular building blocks. Simplest biomolecular assembly: protein folding. Nanoscale intermolecular interactions important for biology. Protein-ligand binding. Protein higher-order assembly: filaments, networks. Protein filaments and motility. DNA, RNA and their assembly assisted by proteins. Viral capsid assembly. Lipid assembly into micelles, bilayers. Lipid-protein co-assembly in membranes. Lipid and polymer structures useful in medicine. Targeted delivery of drugs, genes by nano/micro structures. Cellular assembly in the eye, in insect wings. Cellular assembly at surfaces: gecko feet, duck feathers. Cellular assembly in the presence of crystals: biomineralization.
**Prerequisite:** BIOE120; or students who have taken courses with comparable content may contact the department.
**Jointly offered with:** CHBE680.
**Restriction:** Permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** ENCH648N, CHBE480 or CHBE680.

**CHBE481 Transport Phenomena in Small and Biological Systems (3 Credits)**
Interdisciplinary course primarily for senior undergraduate and graduate students from engineering or science departments. The course's main goal is to make the students familiar with the fundamental physics and modeling of transport phenomena in small and biological systems, and their current scientific and engineering utilization in microfluidics, nanofluidics and biological systems.
**Jointly offered with:** CHBE681.
**Restriction:** Permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** ENCH468W, CHBE481 or CHBE681.
**Formerly:** ENCH468W.
**Additional Information:** Adding graduate course to jointly offered and credit only granted for fields.

**CHBE483 Bioseparations (3 Credits)**
Engineering fundamentals of separations and purification of biological molecules. Case studies and examples illustrate principles and practice of centrifugation, precipitation, crystallization, filtration, membrane separations, chromatography, and affinity separation of recombinant proteins and other biomolecules. Process scale-up and economics of biotechnology products and processes.
**Restriction:** Permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** ENCH483 or CHBE483.
**Formerly:** ENCH483.

**CHBE484 Metabolic Pathway Engineering (3 Credits)**
The state-of-the-art in metabolic engineering, with a focus on the analysis and engineering of metabolic pathways through (chemical) engineering principles, will be covered. Topics covered include: (1) overview of biochemistry and metabolism; (2) metabolic flux analysis and isotope labeling illustrated with examples from the recent scientific literature; (3) technologies for engineering metabolic pathways; (4) metabolic control analysis and pathway regulation; (5) applications of metabolic engineering to synthesis of biofuels and therapeutics; (6) specialized and related subjects such as protein engineering and synthetic biology.
**Prerequisite:** CHBE101 and CHBE440.
**Jointly offered with:** CHBE684.
**Restriction:** Permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** ENCH468M, CHBE484 or CHBE684.
**Formerly:** ENCH468M.

**CHBE485 Biochemical Engineering Laboratory (3 Credits)**
Techniques of measuring pertinent parameters in fermentation reactors, quantification of production variables for primary and secondary metabolites such as enzymes and antibiotics, the insolubilization of enzymes for reactors, and the demonstration of separation techniques such as ultrafiltration and affinity chromatography.
**Credit Only Granted for:** CHBE485 or ENCH485.
**Formerly:** ENCH485.

**CHBE486 Heterogeneous Catalysis for Energy Applications (3 Credits)**
Introduction to heterogeneous catalytic science and technology for energy conversion and hydocarbon processing. Preparation and mechanistic characterization of catalyst systems, kinetics of catalyzed reactions, adsorption and diffusion influences in heterogenious reactions. An overview of heterogeneous catalysis in various energy-related applications, including petroleum refining, chemicals from biomass, valorization of shale gas, and CO2 utilization will be introduced.
**Prerequisite:** Minimum grade of C- in CHBE302, CHBE424, and CHBE440; and permission of instructor.
**Restriction:** Must be in a major within the ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE486, CHBE686 or ENCH686.

**CHBE487 Tissue Engineering (3 Credits)**
A review of the fundamental principles involved in the design of engineered tissues and organs. Both biological and engineering fundamentals will be considered.
**Prerequisite:** Must have completed at least one biology course; and MATH241.
**Recommended:** BSCI330 and BIOE340.
**Restriction:** Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; or permission of ENGR-Chemical & Biomolecular Engineering department.
**Credit Only Granted for:** BIOE411, CHBE487, or ENCH468T.
**Formerly:** ENCH468T.

**CHBE490 Polymer Science (3 Credits)**
The elements of the polymer chemistry and industrial polymerization, polymer structures and physics, thermodynamics of polymer solutions, polymer processing methods, and engineering applications of polymers.
**Credit Only Granted for:** CHBE490, ENCH490, or ENMA495.
**Formerly:** ENCH490.

**CHBE493 Chemical Processes in Beer Brewing (3 Credits)**
Covers chemical engineering principles and chemical processes involved in the brewing and quality control of beer. Topics will include extraction and isomerization of bittering compounds from hops, enzymatic reactions involved in mashing beer, colloidal chemistry of haze formation, and microbiology of yeast and fermentation. Quantitative models will be applied to these processes based on fundamental chemical engineering principles from reaction kinetics, thermodynamics, transport phenomena, and colloid and interfacial science.
**Prerequisite:** Minimum grade of C- in CHBE424 and CHBE440; and permission of instructor.
**Restriction:** Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR- & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE493 or CHBE693.
**Additional Information:** Neither the students nor the instructor will be making or working with alcoholic beverages in the course.

**CHBE494 Sustainable Separations and Carbon Capture (3 Credits)**
Provides a comprehensive overview of sustainable separations and carbon dioxide capture using synthetic membranes and sorbents.
**Prerequisite:** Minimum grade of C- in CHBE424, CHBE426 and CHBE440; and permission of instructor.
**Restriction:** Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and must have permission of ENGR- & Biomolecular Engineering department.
**Credit Only Granted for:** CHBE494 or CHBE694.

**CHBE495 Nanoparticle Aerosol Dynamics and Particle Technology (3 Credits)**
NanoParticles (NA) ( < 100 nm), and their science and technology play an important role in nature and industry. From air quality standards, nuclear reactor safety, inhalation therapy, workplace exposure, global climate change, to counterterrorism, aerosols play a central role in our environment. On the industrial side, NA plays an integral part of reinforcing fillers, pigments and catalysts, and the new emerging field of nanotechnology, they are the building blocks to new materials, which encompass, electronic, photonic and magnetic devices, and bio and chemical sensors.
**Restriction:** Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department.

**CHBE496 Polymeric Materials: Structure, Property, and Processing (3 Credits)**
An intermediate level treatment of structures of polymers. An introduction to mechanical properties and processing of polymeric materials. Emphasis will be on how to establish the structure-property relationship and on how to achieve such understanding via different characterization methods.
**Prerequisite:** ENMA300; and permission of ENGR-Materials Science & Engineering department.
**Cross-listed with:** ENMA496.
**Credit Only Granted for:** ENMA496 or CHBE496.

**CHBE497 Protein Engineering (3 Credits)**
This course will cover the fundamentals of protein engineering and its applications in medicine, chemical processes, and energy. Topics will include the structure and function of biological molecules, rational design and directed evolution, construction of protein and peptide libraries, protein screening platforms, methods for characterizing structure and function of biological molecules. Scientific literature will be used to highlight key discoveries and current work in protein engineering.
**Prerequisite:** BIOE120, CHBE302, and CHBE440; and permission of instructor.
**Jointly offered with:** CHBE697.
**Credit Only Granted for:** CHBE497, BIOE489R, ENCH 648P or CHBE697.

# CHEM - Chemistry

**CHEM131 Chemistry I - Fundamentals of General Chemistry (3 Credits)**
An overview of the Periodic Table, inorganic substances, ionic and covalent bonding, bulk properties of materials, chemical equilibrium, and quantitative chemistry. CHEM131 is the first course in a four-semester sequence for students majoring in the sciences, other than Chemistry and Biochemistry majors.
**Prerequisite:** Must have math eligibility of MATH120 or higher.
**Corequisite:** CHEM132.
**Recommended:** For Science majors.
**Credit Only Granted for:** CHEM103, CHEM131, CHEM135, CHEM153 or CHEM146.
**Formerly:** CHEM103.

**CHEM132 General Chemistry I Laboratory (1 Credit)**
Introduction to the quantification of chemical substances, including the concept of the mole and chemical stoichiometry. Additional work involves the synthesis of ionic substances and their qualitative characterization. Must be taken concurrently with CHEM131.
**Prerequisite:** Must have math eligibility of MATH120 or higher.
**Corequisite:** CHEM131.
**Credit Only Granted for:** CHEM103, CHEM132, CHEM136, CHEM143, CHEM147 or CHEM177.
**Formerly:** CHEM103.

**CHEM134 Chemical Principles for Engineering (1 Credit)**
Basic chemistry for engineering students. Introduction to organic structures and polymers, gas laws, liquids, solids, phase changes, chemical kinetics and electrochemistry.
**Prerequisite:** Minimum grade of C- in CHEM131; or minimum grade of C- in CHEM146.
**Credit Only Granted for:** CHEM 134 or CHEM 135.

**CHEM135 General Chemistry for Engineers (3 Credits)**
The nature and composition of matter, solutions, chemical reactions, equilibria, and electrochemistry, with applications to various fields of engineering.
**Prerequisite:** Must have math eligibility of MATH120 or higher.
**Credit Only Granted for:** CHEM103, CHEM113, CHEM131, CHEM135, or CHEM146.

**CHEM136 General Chemistry Laboratory for Engineers (1 Credit)**
A laboratory course for engineering majors intending to take CHEM231 and CHEM232.
**Prerequisite:** Must have completed or be concurrently enrolled in CHEM135 and must have math eligibility of MATH120 or higher.
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering.

**CHEM146 Principles of General Chemistry (3 Credits)**
An overview of the Periodic Table, inorganic substances, ionic and covalent bonding, bulk properties of materials, chemical equilibrium, and quantitative chemistry. CHEM146 is the first course in a four-semester sequence for Chemistry and Biochemistry majors.
**Prerequisite:** Must have math eligibility of MATH140 or higher.
**Corequisite:** CHEM177.
**Restriction:** Must be in one of the following programs (Chemistry; Biochemistry).
**Credit Only Granted for:** CHEM103, CHEM131, CHEM135, CHEM143, or CHEM146.
**Formerly:** CHEM143.

**CHEM177 Introduction to Laboratory Practices and Research in the Chemical Sciences (2 Credits)**
First semester laboratory course required for CHEM and BCHM majors. Introduction to laboratory techniques, including safety practices, scientific ethics, and presentation of current research topics.
**Prerequisite:** Must have math eligibility of MATH120 or higher.
**Corequisite:** CHEM146, CHEM131, or CHEM135.
**Restriction:** Must be in a major within CMNS-Chemistry & Biochemistry department; or permission of CMNS-Chemistry & Biochemistry department.
**Credit Only Granted for:** CHEM132, CHEM136, CHEM147, or CHEM177.

**CHEM231 Organic Chemistry I (3 Credits)**
The chemistry of carbon: aliphatic compounds, aromatic compounds, stereochemistry, arenes, halides, alcohols, esters and spectroscopy.
**Prerequisite:** CHEM131, CHEM135, or CHEM146; and (CHEM132, CHEM136, CHEM147, or CHEM177); and a grade of C- or better in the prerequisites is required of College of Computer, Mathematical, and Natural Sciences majors and recommended for all students.
**Corequisite:** CHEM232.
**Credit Only Granted for:** CHEM104, CHEM231, CHEM233 or CHEM237.
**Formerly:** CHEM233.

**CHEM232 Organic Chemistry Laboratory I (1 Credit)**
Provides experience in developing some basic laboratory techniques, recrystallization, distillation, extraction, chromatography.
**Prerequisite:** CHEM131 and CHEM132; or (CHEM135 and CHEM136); or (CHEM146 and CHEM147). And a grade of C- or better in the prerequisites is required for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students.
**Corequisite:** CHEM231.
**Credit Only Granted for:** CHEM104, CHEM231, CHEM233 or CHEM237.
**Formerly:** CHEM233.

**CHEM237 Principles of Organic Chemistry I (4 Credits)**
The chemistry of carbons: aliphatic compounds, aromatic compounds, stereochemistry, arenes, halides, alcohols, esters, and spectroscopy.
**Prerequisite:** CHEM131, CHEM135, or CHEM146; and (CHEM132, CHEM136, or CHEM147); and a grade of C- or better in the prerequisites is required of College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Or permission of CMNS-Chemistry & Biochemistry department.
**Restriction:** Must be in one of the following programs (Chemistry; Biochemistry) ; or must be in a major in ENGR-A. James Clark School of Engineering.
**Credit Only Granted for:** CHEM233, (CHEM231 and CHEM232), or CHEM237.

**CHEM241 Organic Chemistry II (3 Credits)**
A continuation of CHEM231 with emphasis on molecular structure; substitution reactions; carbonium ions; aromaticity; synthetic processes; macromolecules.
**Prerequisite:** CHEM231 and CHEM232; or CHEM237. And a grade of C- or better in the prerequisites is required for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students.
**Credit Only Granted for:** CHEM241, CHEM243 or CHEM247.
**Formerly:** CHEM243.

**CHEM242 Organic Chemistry Laboratory II (1 Credit)**
Synthetic organic chemistry through functional group manipulation, introduction to instrumentation essential to analysis and structure elucidation.
**Prerequisite:** CHEM231 and CHEM232; or CHEM237. And a grade of C- or better in the prerequisites is required for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students.
**Corequisite:** CHEM241.
**Credit Only Granted for:** CHEM243 or CHEM247.
**Formerly:** CHEM243.

**CHEM247 Principles of Organic Chemistry II (4 Credits)**
A continuation of CHEM237 with emphasis on molecular structure, substitution reactions; carbonium ions; aromaticity; synthetic processes; macromolecules.
**Prerequisite:** Minimum grade of C- in CHEM237; or permission of CMNS-Chemistry & Biochemistry department.
**Restriction:** Must be in one of the following programs (Chemistry; Biochemistry) ; or must be an honors student.
**Credit Only Granted for:** CHEM243 or CHEM247.

**CHEM271 General Chemistry and Energetics (2 Credits)**
An introduction to the physical aspects of chemistry; chemical kinetics, thermodynamics and electrochemistry in the context of current chemistry research.
**Prerequisite:** CHEM241 and CHEM242; or CHEM247. And a grade of C- or better in the prerequisites for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students.
**Corequisite:** CHEM272.
**Credit Only Granted for:** CHEM113, CHEM153, CHEM271 or CHEM276.
**Formerly:** CHEM113.

**CHEM272 General Bioanalytical Chemistry Laboratory (2 Credits)**
An introduction to analytical chemistry with an emphasis on bio-analytical instrumentation and techniques.
**Prerequisite:** CHEM241 and CHEM242; or CHEM247. And a grade of C- or better in the prerequisites is required for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students.
**Corequisite:** CHEM271.
**Credit Only Granted for:** CHEM227, CHEM272 or CHEM277.

**CHEM276 General Chemistry and Energetics - Majors (2 Credits)**
An introduction to the physical aspects of chemistry for Biochemistry and Chemistry majors. Chemical kinetics, thermodynamics and electrochemistry in the context of current chemistry research.
**Prerequisite:** Minimum grade of C- in CHEM241 and CHEM242; or minimum grade of C- in CHEM247.
**Corequisite:** CHEM277.
**Restriction:** Must be in one of the following programs (Chemistry; Biochemistry).
**Credit Only Granted for:** CHEM113, CHEM153, CHEM271 or CHEM276.
**Formerly:** CHEM153.

**CHEM277 Fundamentals of Analytical and Bioanalytical Chemistry Laboratory (3 Credits)**
Quantitative analysis, inorganic analytical chemistry, and an introduction to bio-analytical instrumentation and techniques.
**Prerequisite:** Minimum grade of C- in CHEM241 and CHEM242; or minimum grade of C- in CHEM247.
**Corequisite:** CHEM276.
**Restriction:** Must be in one of the following programs (Chemistry; Biochemistry).
**Credit Only Granted for:** CHEM153, CHEM227, CHEM272 or CHEM277.

**CHEM386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.
**Restriction:** Junior standing or higher.

**CHEM389 Pedagogy and Instruction in Chemistry (1-2 Credits)**
Methodologies, theory and educational tools applicable to the field of undergraduate chemistry education. Examples covered will use content from introductory general and organic chemistry courses.
**Prerequisite:** Permission of instructor; and minimum grade of B- in CHEM231; and must have completed or be concurrently enrolled in CHEM241.
**Repeatable to:** 6 credits.

**CHEM395 Professional Issues in Chemistry and Biochemistry (1 Credit)**
Seminar on professional issues. Professional responsibilities, ethics, interview techniques, career opportunities, graduate/professional school, race and gender issues.
**Restriction:** Junior standing or higher; and must be in one of the following programs (Chemistry; Biochemistry).

**CHEM398 Special Projects (2 Credits)**
Honors projects for undergraduate students.

**CHEM399 Introduction to Chemical Research (1-3 Credits)**
Basic (chemical) research conducted under the supervision of a faculty member.
**Restriction:** Junior standing or higher; and permission of CMNS-Chemistry & Biochemistry department.
**Repeatable to:** 6 credits.

**CHEM401 Inorganic Chemistry (3 Credits)**
An overview of basic concepts of the electronic structure of the elements, chemical bonding and reactivity, from simple diatomic molecules to coordination compounds. These are viewed from simple (Lewis) to the most comprehensive molecular orbital theory. Symmetry and group theory are used throughout the course.
**Prerequisite:** CHEM276 or CHEM271; and (CHEM247 or CHEM241).

**CHEM403 Radiochemistry (3 Credits)**
Radioactive decay; introduction to properties of atomic nuclei; nuclear processes in cosmology; chemical, biomedical and environmental applications of radioactivity; nuclear processes as chemical tools; interaction of radiation with matter.
**Prerequisite:** Must have completed one year of college chemistry and one year of college physics.

**CHEM425 Instrumental Methods of Analysis (4 Credits)**
Modern instrumentation in analytical chemistry. Electronics, spectroscopy, chromatography and electrochemistry.
**Prerequisite:** CHEM272 and CHEM271; or (CHEM276 and CHEM277).

**CHEM433 Atmospheric Chemistry and Climate (3 Credits)**
The effects of human activity on atmospheric composition, focused on global warming, the carbon cycle, air pollution, and the ozone layer. Fundamentals of atmosphereic chemistry (spectroscopy, kinetics, isotopic analysis, and biogeochemical cycles) are related to the modern understanding of climate change, air quality, and ozone depletion, based on resources such as satellite missions, field campaigns, and scientific assessments published by international agencies. We also examine how society's energy needs could be met, in the future, in a manner with less impact on atmospheric composition than the present heavy reliance on combusion of fossil fuels.
**Prerequisite:** CHEM131, CHEM135, or CHEM146. And MATH241; or permission of CMNS-Atmospheric & Oceanic Science department; or permission of CMNS-Chemistry & Biochemistry department. Cross-listed with AOSC433.
**Credit Only Granted for:** AOSC433, AOSC633, CHEM433, or CHEM633.
**Formerly:** CHEM434.

**CHEM441 Advanced Organic Chemistry (3 Credits)**
An advanced study of the compounds of carbon, with special emphasis on molecular orbital theory and organic reaction mechanisms.
**Prerequisite:** Must have completed or be concurrently enrolled in CHEM480 or CHEM481; and 1 course with a minimum grade of C- from (CHEM241, CHEM247).
**Jointly offered with:** CHEM641.

**CHEM460 Structure Determination Using Spectroscopic Methods (3 Credits)**
The use of infrared, ultraviolet-visible, proton and carbon-13 nuclear magnetic resonance and mass spectroscopy for structure determination in organic chemistry.
**Prerequisite:** Must have completed CHEM243; or CHEM247; or (CHEM241 and CHEM242).
**Formerly:** CHEM660.

**CHEM471 Techniques in Pulse NMR (1 Credit)**
NMR techniques to operate, adjust, and calibrate the spectrometers and acquire and process NMR data in one and two dimensional NMR applications.
**Prerequisite:** CHEM241 and CHEM242; or CHEM247.
**Recommended:** CHEM460.
**Restriction:** Senior standing or higher.
**Additional Information:** Persons with heart pacemakers and/or metal implants cannot take the course due to potential health hazards.

**CHEM480 Principles of Physical Chemistry (3 Credits)**
Covers elementary thermodynamics, principles of kinetics and catalysis and selected topics in molecular quantum mechanics, spectroscopy and statistical mechanics. Topics will emphasize core subjects along with applications to biosciences, materials science, environmental science and related areas.
**Prerequisite:** (CHEM276 or CHEM271); and (CHEM277 or CHEM272); and (MATH141 or MATH136); and (PHYS260 and PHYS261) or PHYS132.

**CHEM481 Physical Chemistry I (3 Credits)**
Thermodynamics and kinetics of chemical and molecular systems. Topics may include internal energy, heat, work, enthalpy, entropy, free energy, and spontaneity as well as reaction order, differential rate laws, integrated rate laws, and rate laws for multi-step processes.
**Prerequisite:** Minimum grade of C- in CHEM135; or minimum grade of C- in CHEM271 and CHEM272; or minimum grade of C- in CHEM276 and CHEM277. And minimum grade of C- in MATH141. And minimum grade of C- in PHYS260 and PHYS261; or minimum grade of C- in PHYS141.

**CHEM482 Physical Chemistry II (3 Credits)**
Quantum mechanical nature of atoms and molecules. Topics may include model systems for electronic, vibrational, rotational and translational energies as well as connections to molecular spectroscopy and thermal distributions.
**Prerequisite:** Minimum grade of C- in CHEM135; or minimum grade of C- in CHEM271 and CHEM272; or minimum grade of C- in CHEM276 and CHEM277. And minimum grade of C- in MATH141. And minimum grade of C- in PHYS260 and PHYS261; or minimum grade of C- in PHYS141.
**Credit Only Granted for:** CHEM482 or BCHM485.

**CHEM483 Physical Chemistry Laboratory I (2 Credits)**
An introduction to the principles and application of quantitative techniques in physical chemical measurements. Experiments will be coordinated with topics in CHEM481.
**Prerequisite:** Must have completed or be concurrently enrolled in CHEM481.

**CHEM484 Physical Chemistry Laboratory II (2 Credits)**
A continuation of CHEM 483. Advanced quantitative techniques necessary in physical chemical measurements. Experiments will be coordinated with topics in CHEM 482.
**Prerequisite:** CHEM481 and CHEM483; and must have completed or be concurrently enrolled in CHEM482.

**CHEM498 Special Topics in Chemistry (3 Credits)**
**Prerequisite:** Prerequisite varies with the nature of the topic being considered.

# CHIN - Chinese

**CHIN101 Intensive Elementary Chinese I (6 Credits)**
Introduction to speaking, reading, and writing Chinese with an emphasis on mastering the essentials of pronunciation, basic characters and structural patterns.
**Prerequisite:** Must have attained appropriate World Language Placement Test (WLPT) score.

**CHIN102 Elementary Spoken Chinese (3 Credits)**
Continued study of grammatical patterns and vocabulary buildup with particular emphasis on conversation.
**Prerequisite:** CHIN101; or students who have taken courses with comparable content may contact the department; or must have attained appropriate World Language Placement Test (WLPT) score.
**Corequisite:** CHIN103.
**Additional Information:** Must be taken in conjunction with CHIN103.

**CHIN103 Elementary Written Chinese (3 Credits)**
Continued study of grammatical patterns and buildup of vocabulary with particular emphasis on reading and writing.
**Prerequisite:** CHIN101; or students who have taken courses with comparable content may contact the department; or must have attained appropriate World Language Placement Test (WLPT) score.
**Corequisite:** CHIN102.
**Additional Information:** Must be taken in conjunction with CHIN102.

**CHIN105 Elementary Chinese - Accelerated Track (3 Credits)**
Accelerated instruction in Mandarin Chinese at the elementary level for students with prior Chinese language background, either through home use or formal instruction.
**Prerequisite:** Must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Must not have completed CHIN103, CHIN102, or CHIN101.

**CHIN169 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**CHIN201 Intermediate Spoken Chinese I (3 Credits)**
Emphasis on development of conversational skills with vocabulary build-up and controlled conversation.
**Prerequisite:** CHIN102; or must have attained appropriate World Language Placement Test (WLPT) score.
**Corequisite:** CHIN202.
**Additional Information:** Must be taken in conjunction with CHIN202.

**CHIN202 Intermediate Written Chinese I (3 Credits)**
Reading and writing skills with emphasis on grammar and Chinese characters.
**Prerequisite:** CHIN103; or must have attained appropriate World Language Placement Test (WLPT) score.
**Corequisite:** CHIN201.
**Additional Information:** Must be taken in conjunction with CHIN201.

**CHIN203 Intermediate Spoken Chinese II (3 Credits)**
Continuation of CHIN201.
**Prerequisite:** CHIN201; or students who have taken courses with comparable content may contact the department; or must have attained appropriate World Language Placement Test (WLPT) score.
**Corequisite:** CHIN204.
**Additional Information:** Must be taken in conjunction with CHIN204.

**CHIN204 Intermediate Written Chinese II (3 Credits)**
Continuation of CHIN202.
**Prerequisite:** CHIN202; or students who have taken courses with comparable content may contact the department; or must have attained appropriate World Language Placement Test (WLPT) score.
**Corequisite:** CHIN203.
**Additional Information:** Must be taken in conjunction with CHIN203.

**CHIN205 Intermediate Chinese - Accelerated Track (3 Credits)**
Accelerated instruction in Mandarin Chinese at the intermediate level for students with prior Chinese language background, either through home use or formal instruction.
**Prerequisite:** Must have attained appropriate World Language Placement Test (WLPT) score.
**Restriction:** Must not have completed CHIN201, CHIN203, CHIN202, or CHIN204.

**CHIN215 Introduction to Chinese Philosophy (3 Credits)**
How should one make moral choices? What is the best way to live a moral life? How should the state be organized to best encourage proper human behavior? And what happens if the state comes to be formed as an empire? What are the proper moral ways to respond? Questions such as these were at the heart of early Chinese philosophical debates (roughly fifth through first centuries BCE). This course will be study of how the early Chinese thinkers wrestled with these questions and what responses they gave. As we will quickly see, the views that arose in early China were among the most powerful and influential in human history. Regardless of whether one agrees with these views or not, they should be studied and taken seriously by anyone who cares about ethics and politics.
**Additional Information:** Course is taught in English. No previous knowledge of Chinese philosophy and history will be assumed and no prerequisites are required.

**CHIN220 Beginning Chinese Calligraphy (3 Credits)**
Introduction to techniques, history, and culture of Chinese calligraphy. Extensive hands-on practice. Taught in English.

**CHIN269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**CHIN301 Advanced Chinese I (3 Credits)**
Readings in expository and fictional writing with conversation and composition.
**Prerequisite:** CHIN202; or students who have taken courses with comparable content may contact the department. And must have taken a placement interview offered by the department for Non-majors.

**CHIN302 Advanced Chinese II (3 Credits)**
Continuation of CHIN301.
**Prerequisite:** CHIN301; or students who have taken courses with comparable content may contact the department. And must have taken a placement interview offered by the department for Non-majors.

**CHIN305 Life in China through TV Plays I (3 Credits)**
Using authentic Chinese language material in short TV plays to learn about society and life in China.
**Prerequisite:** CHIN203 and CHIN204; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**CHIN306 Life in China through TV Plays II (3 Credits)**
Continuation of CHIN305 using authentic Chinese language material in TV plays to learn about society and life in China.
**Prerequisite:** CHIN305; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**CHIN307 Linguistic Landscape of China (3 Credits)**
Comprehensive introduction to Chinese and other major languages in the Sino-Tibetan, Altaic, Austroasiatic, and Austronesian families, all of which are spoken in China. Taught in English.
**Prerequisite:** Must have completed CHIN204 or above; or permission of Chinese Program Advisor.

**CHIN313 Chinese Poetry and Prose in Translation (3 Credits)**
Writing of the major poets, essayists, and historians from the 10th century B.C. to the 12th century A.D. No knowledge of Chinese is required.

**CHIN315 Modern Chinese Literature in Translation (3 Credits)**
Major works of fiction and drama from 1920 to the present read in the context of social and literary change. Emphasis on western and traditional Chinese influences on the writers and their works. No knowledge of Chinese required.

**CHIN331 Chinese Calligraphy: Theory and Practice (3 Credits)**
History of the writing system; major scripts, modes, and styles. Intermediate brushwork and lectures on the culture. Characters for practice selected to correspond to lecture topics. Taught in English.
**Prerequisite:** CHIN220; or permission of instructor.

**CHIN332 Chinese Culture through Traditional Chinese Arts (3 Credits)**
Study of calligraphy, music, painting, and taichi coupled with critical readings of scholarly and literary texts. Facilitates an understanding of China and Chinese culture through traditional Chinese arts. Taught in English.

**CHIN369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**CHIN386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Must have learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.
**Restriction:** Junior standing or higher.

**CHIN388 Topics in Chinese Literature in Translation (3 Credits)**
Analysis of significant themes and structures in Chinese literature. No knowledge of Chinese required.
**Repeatable to:** 6 credits if content differs.

**CHIN389 Language House Spring Colloquium (1 Credit)**
For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.
**Restriction:** Must be a resident of Language House.
**Repeatable to:** 8 credits.

**CHIN401 Readings in Modern Chinese I (3 Credits)**
Readings in history, politics, economics, sociology, and literature. Emphasis on wide-ranging, rapid reading, reinforced by conversations and compositions.
**Prerequisite:** CHIN302; or students who have taken courses with comparable content may contact the department. And must have taken a placement interview offered by the department for Non-majors.

**CHIN402 Readings in Modern Chinese II (3 Credits)**
Continuation of CHIN401.
**Prerequisite:** CHIN401; or students who have taken courses with comparable content may contact the department. And must have taken a placement interview offered by the department for Non-majors.

**CHIN403 Classical Chinese I (3 Credits)**
Close readings and discussion of literary, philosophical and historical texts in the original language. The course situates texts in their historical context and also discusses differences between classical and modern Chinese.
**Prerequisite:** CHIN302 or CHIN306; or permission of instructor.
**Additional Information:** Texts in Chinese. Class discussion and course work mainly in English.

**CHIN408 Selected Readings in Classical Chinese (3 Credits)**
Selected readings in Classical Chinese, including important representative works of history, poetry, and parallel prose. Close attention is paid to matters of grammar and phonology in the readings. Content will differ each time this course is offered.
**Prerequisite:** CHIN321; and must have knowledge of Pinyin.
**Repeatable to:** 9 credits if content differs.

**CHIN411 Business Chinese I (3 Credits)**
Conversation, reading, and writing applicable to Chinese business transactions, social meetings, and meetings with government organizations, plus background material in English on professional business practices and social customs associated with business.
**Prerequisite:** CHIN402; or permission of ARHU-School of Languages, Literatures, and Cultures department. And must have taken a placement interview offered by the department for Non-majors.

**CHIN415 Readings in Current Newspapers and Periodicals (3 Credits)**
Reading of periodical literature on selected topics with discussions and essays in Chinese.
**Prerequisite:** CHIN402; or students who have taken courses with comparable content may contact the department. And must have taken a placement interview offered by the department for Non-majors.

**CHIN418 Special Topics in Contemporary Chinese Fiction and Film (3 Credits)**
Various approaches to the most recent textual productions of China and Taiwan. Taught in Chinese.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 12 credits if content differs.

**CHIN425 Ethnic and Cultural Diversity in China (3 Credits)**
This course looks into ethnic and cultural diversity in China. It examines the evolution of the People's Republic of China's (PRC) ethnic policies in relation to nation-state building over the last six decades. Specifically, it studies how the PRC has categorized the Chinese people into 56 ethnic groups, how it has made affirmative action policies to accommodate ethnic diversity, and what problems its approaches have experienced and what solutions it has proposed in its accommodation of ethnicity and diversity in the 21st century. To examine the above issues, the course introduces and applies the concepts of ethnicity, nationality, ethnic nationalism, civic nationalism, identity, social Darwinism, the Soviet model of multinational state building, the Chinese model of inclusive Chinese nation state building, citizenship, individual rights, group rights, equality, and diversity.
**Recommended:** Any CHIN course or course on China.
**Credit Only Granted for:** CHIN425 or CHIN429G.
**Formerly:** CHIN429G.

**CHIN428 Selected Topics in Chinese Linguistics (3 Credits)**
Undergraduate seminar in Chinese linguistics. Topics may include the ancient writing system, historical phonology, dialectology, prosody and rhyming, grammar and the history of the language as a whole. This course may be repeated with different content, and satisfies the linguistics requirement for the Chinese major. Students are expected to be in at least Third Year Chinese. Taught in English.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Sophomore standing or higher.
**Repeatable to:** 12 credits if content differs.

**CHIN429 Selected Topics in Chinese Studies (3 Credits)**
In-depth study of a particular aspect of Chinese cultural, linguistic, literary studies. Specific topic to be announced when course is offered. Taught in English.
**Prerequisite:** CHIN315.
**Repeatable to:** 6 credits if content differs.

**CHIN441 Traditional Chinese Fiction (3 Credits)**
Major works of fiction from the 4th century tales of the marvelous through the 19th century Qing novel. Readings are in classical Chinese and English. Designed for students with advanced language skills. Taught in English.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.

**CHIN443 Cultural Histories of Medicine in China (3 Credits)**
Investigates medical knowledge through traditional Chinese approaches to the body and beliefs about healing, including acupuncture, herbal medicine, prayer, ritual and folk medicine. Taught in English.
**Restriction:** Permission of department, School of Languages, Literatures and Cultures.

**CHIN499 Directed Study in Chinese (1-3 Credits)**
Readings in Chinese under faculty supervision.
**Prerequisite:** Permission of instructor.
**Repeatable to:** 6 credits if content differs.

# CHSE - Counseling, Higher Education, and Special Education

**CHSE200 College Success and Life Planning - Managing College and Career Life through Goal Development and Planning (3 Credits)**
The overarching goal of this course is to guide new students affiliated with the TerpsEXCEED program in navigating the initial stages of college, career and campus life management. The course is organized around Academic and Career Habits, Cultural Know-How, Balance of Multiple Roles, and Self-Direction in order to address (a) skills and interest assessments, (b) goal setting, (c) organizational and independent living skills development, (d) travel and transportation orientation to navigate and access campus and College Park, (e) financial planning, (f) safety, (g) social activity access, and (h) basic scheduling and time management. TerpsEXCEED students will be matched with typical student peer supports for a more normalized college experience.
**Restriction:** Must be in the TerpsEXCEED Program; and permission from TerpsEXCEED Director.
**Additional Information:** Priority enrollment for students in the TerpsEXCEED program.

**CHSE205 Disability: From Stigma and Sideshow to Mainstream and Main Street (3 Credits)**
Explores the cultural, historical, educational, and medical roots of difference among human beings and examines the impact of cultural and technological changes on individuals traditionally identified as disabled. The course is designed to develop a broad understanding of the concept of "disability" and the emerging technologies that shape contemporary understanding of this phenomenon and the lives of those considered disabled.
**Credit Only Granted for:** EDSP289I or CHSE205.
**Formerly:** EDSP289I.

**CHSE228 Common Ground Deliberative Dialogues (1 Credit)**
Students will explore current societal issues through an intergroup, deliberative dialogue model. The course includes foundations of dialogue, identity reflection, peer leadership, engagement across differences, and dialogic skill-building.
**Repeatable to:** 2 credits if content differs.
**Credit Only Granted for:** CHSE228 or CHSE328.
**Formerly:** CHSE328.

**CHSE230 Career Exploration and Development (3 Credits)**
This course prepares TerpsEXCEED students for on-the-job internship experiences in future semesters by guiding them through career exploration, discovery, and skill development. Students will complete career assessments, develop resumes, practice interviews, engage employers, learn how to fill out applications, practice technical and soft skills to improve employability, and secure internship options for the next semester.
**Restriction:** Must be in the TerpsEXCEED program; and permission from the College of Education Student Services office.

**CHSE338 Teaching and Learning about Cultural Diversity through Intergroup Dialogue (1-3 Credits)**
Engages students, from one or more cultural identity groups, in facilitated dialogue about the similarities and differences of experience that exist within a group and/or between and across groups. The goal of intergroup dialogue is for students to develop comfort with, and skill for, discourse on identity-based topics toward the end of fostering positive, meaningful, and sustained cross-group relationships. Whereas in debate, students learn to listen to gain advantage, in intergroup dialogue, students learn to listen to gain understanding. In so doing, students develop increased multicultural interaction facility, heightened intergroup awareness and sensitivity, and greater commitment to civic engagement.
**Prerequisite:** Completion of on-line enrollment form.
**Cross-listed with:** ENES338.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** CHSE338, EDHI338, ENES338 or WEID139.
**Formerly:** CHSE338.

**CHSE389 Independent Study (3 Credits)**
Customized project based on an individual topic area within Counseling, Higher Education and Special Education
**Recommended:** Has completed at least one full semester; CHSE200.
**Restriction:** Permission from the Counseling, Higher Education, and Special Education Department.
**Repeatable to:** 9 credits.
**Formerly:** CHSE398.

**CHSE489 Internship - Terps Exceed (3 Credits)**
Builds on students' individual career exploration process, which determines what types of internships students participate in. It is a fully experiential course that requires on-the-job experiences related to career interests and course of study; an additional semester can involve expansion of a position with new learning tasks or a new position. Students are graded on self-reflections, employer feedback, instructor observations and a final project demonstrating newly gained on-the-job knowledge and an updated career plan.
**Recommended:** CHSE230, CHSE388; or other career development course .
**Restriction:** Permission of Counseling, Higher Education, and Special Education Department.
**Repeatable to:** 6 credits.

# CINE - Cinema and Media Studies

**CINE245 Film Form and Culture (3 Credits)**
Introduction to film as art form and how films create meaning. Basic film terminology; fundamental principles of film form, film narrative, and film history. Examination of film technique and style over past one hundred years. Social and economic functions of film within broader institutional, economic, and cultural contexts.
**Cross-listed with:** ENGL245.
**Credit Only Granted for:** ENGL245, CINE245 or FILM245.
**Formerly:** FILM245.

**CINE280 Film Art in a Global Society (3 Credits)**
Comparative study of a variety of film traditions from around the world, including cinema from Hollywood, Europe, Asia and developing countries, with a stress on different cultural contexts for film-making and viewing.
**Cross-listed with:** CMLT280.
**Credit Only Granted for:** CINE280, FILM298D or CMLT280.
**Formerly:** FILM298D.

**CINE282 Heroes and Villains in American Film (3 Credits)**
We will examine the complex, changing, and ever-present representations of heroes and villains in American film. Beginning with a foundational understanding of how heroes and, conversely, villains have been defined through classic Hollywood film, we will explore how these definitions have shifted throughout the 20th and 21st century in various narrative genres, including westerns, war films, film noir, fantasy, science fiction, and, of course, superhero movies. In particular, we will be focusing on how the hero and villain maintain or disrupt specific cultural ideologies concerning race/ethnicity, gender, sexuality, and ability. This course will examine how these various ideologies have evolved throughout the 20th and 21st century, impacting the ways in which heroes and villains are both represented in American film and perceived by diverse audiences. Finally, we will examine our own complicated and sometimes troubling identification with these heroes, even when they might stand in stark contrast to our cultural values and identities.
**Cross-listed with:** AMST213.
**Credit Only Granted for:** AMST213, HONR219F, CINE282 or FILM298V.
**Formerly:** HONR219F, FILM298V.

**CINE283 Iranian Cinema (3 Credits)**
Introduction to Iranian cinema, society, and culture. Taught in English.
**Cross-listed with:** PERS283.
**Credit Only Granted for:** PERS283, CINE283 or FILM298B.

**CINE298 Special Topics in International Film Studies (3 Credits)**
Special topics in International Film.
**Repeatable to:** 9 credits if content differs.
**Formerly:** FILM298.

**CINE301 Cinema History I: The Silent Era (3 Credits)**
Examines the development of silent cinema from the 1890s to the early 1930s drawing on at least five distinct national traditions (French, German, Russian, British, and American). Introduces students to key cinematic conventions as they emerged around the world.
**Prerequisite:** ENGL245, CINE245, or FILM245; or permission of ARHU-College of Arts & Humanities.
**Credit Only Granted for:** CINE301 or FILM301.
**Formerly:** FILM301.

**CINE302 Cinema History II: The Sound Era (3 Credits)**
Introduction to the international history of cinema from sound around 1930 to the present.
**Prerequisite:** ENGL245, FILM245, or CINE245.
**Restriction:** Must have permission of the Film Studies program.
**Credit Only Granted for:** CINE302 or FILM302.
**Formerly:** FILM302.

**CINE310 Introduction to Filmmaking 1 (3 Credits)**
This practice-based course offers an introduction to the foundational skills, techniques, and principles of filmmaking. Prior film or video production experience is not necessary.
**Restriction:** Permission of the Cinema and Media Studies program.
**Repeatable to:** 6 credits.
**Credit Only Granted for:** CINE319M or CINE310.
**Formerly:** CINE319M.

**CINE311 Documentary Film (3 Credits)**
A survey of currents in the history of the documentary film, beginning with early cinema and continuing through to more recent manifestations.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of ARHU-College of Arts & Humanities.
**Credit Only Granted for:** CINE311, FILM311 or ENGL329L.
**Formerly:** FILM311.

**CINE316 Classical Antiquity and the Cinema (3 Credits)**
Many films, while rooted in the time and place in which they were created, draw upon themes and stories from ancient Greek and Roman literature. While the filmmakers' understandings of modern social forces affect their representations of the ancient world, the ancient works also shape the ways in which filmmakers tell their stories. Film criticism and close reading complement each other in the analysis of films and the ancient works on which they are based.
**Cross-listed with:** CLAS316.
**Credit Only Granted for:** CLAS316 or CINE316.

**CINE319 Special Topics in Documentary, Animation, Experimental Cinema, and Other Visual Media (3 Credits)**
Examine the possibilities of non-narrative cinema, or cinema that is structured differently from the fiction feature film, as well as other media (television, digital imagery, and photography) that entertain a close relationship with cinema in terms of form, content, and audience. Content varies.
**Repeatable to:** 6 credits.
**Formerly:** FILM319.

**CINE329 Special Topics in National/International Cinemas (3 Credits)**
Examine one or more national cinematic traditions (including Hollywood cinema), or may look across traditions comparatively, for example at international and/or transnational phenomena. Content varies.
**Repeatable to:** 6 credits.
**Formerly:** FILM329.

**CINE331 Kafka and Film: The Uncanny in Literature and Film (3 Credits)**
Analysis of major works by Franz Kafka (1883-1924), his affinity to the cinema and use of cinematic means and techniques (e.g. the gaze, flashback, parallel action, gesture and body language, etc.) in his writings, as well as examination of adaptations of Kafka narratives (e.g. the Orson Welles and David Jones adaptations of The Trial, 1961, 1992) and other films that use Kafkaian themes (e.g. Steven Soderbergh's 'Kafka', 1991).
**Cross-listed with:** GERS331.
**Credit Only Granted for:** GERM331, GERS331, or CINE331.

**CINE332 Brazilian Cinema (3 Credits)**
Brazilian films from the late 1950s to the present with a special view to the relationship between cinema, society, historical dates, and social changes in Brazil. Taught in English.
**Cross-listed with:** PORT332.
**Credit Only Granted for:** PORT332, CINE332, or FILM332.
**Formerly:** FILM332.

**CINE334 Soviet Film: Propaganda, Myth, Modernism (3 Credits)**
A Survey of Soviet film from the 1920s to 1991, focusing on important directors, genres, themes, and styles. Taught in English.
**Cross-listed with:** RUSS334.
**Credit Only Granted for:** RUSS334, CINE334, or FILM334.
**Formerly:** FILM334.

**CINE335 Transnational Chinese Cinema (3 Credits)**
Chinese cinema has made a big impact on contemporary world film culture. This course will introduce students to the films directed by some of the most representative filmmakers working in different geopolitical locations (mainland China, Taiwan, Hong Kong) and the Chinese diaspora. The films of these directors, in a spectrum of genres, themes, and styles, have inspired global scholarship, not only in visual culture and cinema, but also in the study of women's issues, gender and ethnic studies, as well as the fields of adaptation and intermedia studies. Students will explore these films in their socio-historical and artistic contexts, considering the influences and innovations that have shaped them and analyzing their reception by audiences and critics. After reading about the films they view, and participating in class discussions, students will be ready to complete their analytical written assignments, for which they will critically examine the films by applying key concepts such as gender, sexuality, race, gaze, style, representation, power, diaspora, etc.
**Cross-listed with:** ARTH391.
**Credit Only Granted for:** ARTH391 or CINE335.

**CINE336 Soviet Cinema and Empire (3 Credits)**
Examination of the concepts of "empire" and "nation" through their representation in Soviet cinema. Taught in English.
**Cross-listed with:** RUSS336.
**Credit Only Granted for:** RUSS336, CINE336, or FILM336.
**Formerly:** FILM336.

**CINE337 Contemporary Chinese Art and Film (3 Credits)**
Contemporary Chinese art and film are arguably the most vibrant of all national arts at the turn of the millennium and have become the face - both figuratively and literally - of contemporary China, a complex society with historic overlays of Confucianism, Taoism, Buddhism, Communism, Post-socialism, and state capitalism. Students will consider a wide range of art forms (painting, photography, video, installation, web-based media, and film) in four broad themes (uses of the past; critiques of power; representations of race, gender, and sexuality; socially engaged art) and explore the complex intertwining of the political, historical, and aesthetic aspects in Chinese contemporary art and film, as well as the multiple contexts in which these artworks are created and circulated.
**Cross-listed with:** ARTH392.
**Credit Only Granted for:** ARTH392, FILM329L or CINE337.
**Formerly:** FILM329L.

**CINE341 Filming War Zones: Representations of Wars in Iraq & Chechnya (3 Credits)**
Comparative study of ideological and cultural discourses in war films covering military conflicts in Iraq and Chechnya in late 20th-early 21st centuries. Materials include American, Middle Eastern, and Russian feature films and documentaries; theories of propaganda, ideology and popular culture. Taught in English.
**Cross-listed with:** ARAB341.
**Credit Only Granted for:** ARAB341, CINE341 or FILM341.
**Formerly:** FILM341.

**CINE342 Film Comedy (3 Credits)**
Comedy as a specific cinematic genre.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Cross-listed with:** SLLC342.
**Credit Only Granted for:** SLLC342, CINE342, or FILM342.
**Formerly:** FILM342.

**CINE344 Film and the Fantastic (3 Credits)**
Survey of fantastic cinema, encompassing American classics, Hollywood recent productions, and independent films, as well as Asian horror films, anime, and European fantasy.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Cross-listed with:** SLLC344.
**Credit Only Granted for:** SLLC344, CINE344 or FILM344.
**Formerly:** FILM344.

**CINE345 The Films of Alfred Hitchcock (3 Credits)**
An examination of important Hitchcock films from the perspective of innovation, aesthetics, and cultural history.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of ARHU-College of Arts & Humanities.
**Credit Only Granted for:** CINE345, FILM345 or ENGL329J.
**Formerly:** FILM345.

**CINE352 The Baddest Decade: The 1970s in American Film and American History (3 Credits)**
The history of the United States and of its cinema in the 1970s.
**Cross-listed with:** HIST304.
**Credit Only Granted for:** CINE352, FILM352 or HIST304.
**Formerly:** FILM352.

**CINE359 Special Topics in Genres/Auteurs/Cinema Movements (3 Credits)**
Examine narrative cinema from the perspective of content (themes, issues, structures) and style through the lens of genre, auteurship (a concept of authorship in film studies), and/or historical aesthetic movements that have been influential in the development of cinema as an art and film studies as a field. Content varies.
**Repeatable to:** 6 credits.
**Formerly:** FILM359.

**CINE361 Cinema and Globalization (3 Credits)**
Introduction to cinema as a global phenomenon.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of Film Studies program; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Cross-listed with:** SLLC361.
**Credit Only Granted for:** SLLC361, CINE361, or FILM361.
**Formerly:** FILM361.

**CINE362 Vision, Visuality, and the Gaze in Cinema (3 Credits)**
Students will build a way of talking critically about film. The prism of seeing, visuality, the gaze, and the like will serve as a way to investigate the way films take on meaning as well as to understand how film participates in a wide network of interconnected ideas, concepts, and modes of thought that have contributed to the audiences' ability to make sense of what a film is conveying.
**Prerequisite:** ENGL245, FILM245 or CINE245; or permission of Film Studies Program; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Cross-listed with:** SLLC362.
**Credit Only Granted for:** SLLC362, CINE362, or FILM362.
**Formerly:** FILM362.

**CINE369 Special Topics in Film Theories (3 Credits)**
Examines specific methodologies (structuralism, feminism, postcolonialism, etc.) for the critical analysis of film. The course will also consider the historical development of theoretical concepts. Content varies.
**Repeatable to:** 6 credits if content differs.
**Formerly:** FILM369.

**CINE385 German Cinema (3 Credits)**
A history of German cinema from the golden age of silent films to the flourishing film culture of the 21st Century. Focuses on changing ideas of the role and purpose of national cinema, as well as the cinematic representation of nation and national identity. Taught in English.
**Cross-listed with:** GERS385.
**Credit Only Granted for:** GERM385, GERS385, CINE385 or FILM385.
**Formerly:** FILM385.

**CINE388 Experiential Learning: Cinema and Media Studies (1-3 Credits)**
Connects students' theoretical understanding of film studies, as obtained through the classroom, to professional experience.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Junior standing or higher.
**Repeatable to:** 6 credits.
**Formerly:** FILM388.

**CINE410 Documentary and Narrative (3 Credits)**
An examination of the relationship between film and reality, focusing on documentary film.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Cross-listed with:** SLLC410.
**Credit Only Granted for:** SLLC410, CINE410 or FILM410.
**Formerly:** FILM410.

**CINE411 Experimental Film (3 Credits)**
Introductory survey of European and U.S. American experimental cinema.
**Cross-listed with:** SLLC411.
**Credit Only Granted for:** SLLC411, CINE411 or FILM411.
**Formerly:** FILM411.

**CINE412 Animation and Cinema (3 Credits)**
An examination of animation in art, cinema, and other media.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of ARHU-College of Arts & Humanities.
**Credit Only Granted for:** CINE412, FILM412 or ENGL468C.
**Formerly:** FILM412.

**CINE419 Special Topics in Documentary, Animation, Experimental Cinema, and Other Media (3 Credits)**
Advanced studies in Documentary, Animation, Experimental Cinema, and Other Media. Examines the possibilities of non-narrative cinema, or cinema that is structured differently from the fiction feature film, as well as other media (television, digital imagery, and photography) that entertain a close relationship with cinema in terms of form, content, and audience. Content varies.
**Prerequisite:** ENGL245, FILM245, or CINE245; and or permission of ARHU College of Arts and Humanities.
**Repeatable to:** 6 credits if content differs.
**Formerly:** FILM419.

**CINE420 French Cinema: A Cultural Approach (in Translation) (3 Credits)**
A study of French culture, civilization, and literature through the medium of film. Taught in English.
**Cross-listed with:** FREN480.
**Credit Only Granted for:** FREN480, CINE420 or FILM420.
**Formerly:** FILM420.

**CINE421 Francophone African Film (3 Credits)**
Imaginary and Memory in the reality of Francophone African Film from 1960-present. Taught in English.
**Cross-listed with:** FREN421.
**Credit Only Granted for:** FREN421, CINE421 or FILM421.
**Formerly:** FILM421.

**CINE423 Women and French Cinema (3 Credits)**
Cultural identity, social boundaries and gender roles in French film as well as introduction to film textual analysis and diverse film theories (semiotics, film and psychoanalysis, feminist film theory, structuralism, narratology, spectatorship and cultural studies). Taught in French.
**Cross-listed with:** FREN423.
**Credit Only Granted for:** FREN423, CINE423 or FILM423.
**Formerly:** FILM423.

**CINE426 Modern Chinese Film and Visual Culture (3 Credits)**
Modern Chinese culture, society, and history studied through examples of art, film, and visual culture.
**Cross-listed with:** ARTH484.
**Credit Only Granted for:** ARTH484, CINE426 or FILM426.
**Formerly:** FILM426.

**CINE429 Special Topics in National/International Cinemas (3 Credits)**
Courses in National/International Cinemas may examine one or more national cinematic traditions (including Hollywood cinema), or may look across traditions comparatively, for example at international and/or transnational phenomena. Content varies.
**Repeatable to:** 6 credits.
**Formerly:** FILM429.

**CINE430 Critical Issues in Israeli Cinema (3 Credits)**
Critical investigation of Zionist and Israeli culture and politics through film.
**Cross-listed with:** HEBR430.
**Credit Only Granted for:** HEBR430, CINE430 or FILM430.
**Formerly:** FILM430.

**CINE431 Italian Cinema II (In Translation) (3 Credits)**
A study of Italian society and culture through the medium of film from the mid 1970's to the present. Taught in English.
**Cross-listed with:** ITAL473.
**Credit Only Granted for:** ITAL473, CINE431 or FILM431.
**Formerly:** FILM431.

**CINE433 Holocaust in Italian Literature and Cinema (3 Credits)**
Review of literature and theoretical writings of Italy's most famous survivor, Primo Levi, to a sampling of Italian films that focus in vastly different and often extremely controversial ways on the experience of the concentration camp, while addressing a series of central questions from the brutal realities of the camps to the "compromises" made in order to survive, the need to bear witness, and the idea of the survivor's guilt.
**Cross-listed with:** ITAL433.
**Credit Only Granted for:** CINE433, FILM433 or ITAL433.
**Formerly:** FILM433.

**CINE441 Italian Cinema I: Neorealism (3 Credits)**
Explores representations of Italy in cinema with special focus on identity formation and the movement of Italian neorealism and post neorealism. Taught in English.
**Cross-listed with:** ITAL436.
**Credit Only Granted for:** CINE441, FILM441 or ITAL436.
**Formerly:** FILM441.

**CINE451 Film Noir and American Culture (3 Credits)**
Introduction to a variety of American movies made in the 1940s and 1950s whose dark themes and stark black-and-white lighting led to their identification as film noir.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of ARHU-College of Arts & Humanities.
**Credit Only Granted for:** CINE451 or FILM451.
**Formerly:** FILM451.

**CINE452 The Origins of Cinema (3 Credits)**
An in-depth engagement with the specificity of early cinema, dedicated to a comparative framework that compares the early cinema period (1890-1915) to other moments of media emergence, both before and after cinema, with special emphasis on the current, "digital" moment.
**Prerequisite:** ENGL245, FILM245, FILM283, or SLLC283; or permission of Film Studies Program.
**Credit Only Granted for:** CINE452, FILM452 or ENGL468G.
**Formerly:** FILM452.

**CINE459 Special Topics in Genres/Auteurs/Cinema Movements (3 Credits)**
Special topics in genres, auteurs, and cinema movements.
**Repeatable to:** 6 credits.
**Formerly:** FILM459.

**CINE461 Political Cinema (3 Credits)**
Histories of cinema and politics in the 20th century.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Cross-listed with:** SLLC461.
**Credit Only Granted for:** CINE461, FILM461 or SLLC461.
**Formerly:** FILM461.

**CINE462 Realism and the Real in Film (3 Credits)**
Exploration of the problem of realism, one of the most central theoretical issues in film studies.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of instructor.
**Credit Only Granted for:** CINE462 or FILM462.
**Formerly:** FILM462.

**CINE463 Screening Time: History and Memory in Cinema (3 Credits)**
An examination of the ways and techniques with which cinema produces a sense of time in the viewer.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of ARHU-College of Arts & Humanities.
**Cross-listed with:** SLLC463.
**Credit Only Granted for:** SLLC463, CINE463 or FILM463.
**Formerly:** FILM463.

**CINE464 The Violence of Cinema (3 Credits)**
An investigation of cinema's multifaceted relationship to violence.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of instructor.
**Credit Only Granted for:** CINE464 or FILM 464.
**Formerly:** FILM464.

**CINE467 Visions and Fictions from Spain (3 Credits)**
Overview of Spanish cinema from the end of the 19th century through present day Spain. Exploration of the production of literary and cinematic texts in their social, historical, political, religious, and cultural contexts.
**Prerequisite:** One course from SPAN331, SPAN332, SPAN333, SPAN361, SPAN362 or SPAN363; or permission of instructor.
**Recommended:** SPAN333.
**Cross-listed with:** SPAN467.
**Credit Only Granted for:** CINE427, CINE467, FILM427, SPAN427, or SPAN467.
**Formerly:** FILM427, CINE427, and SPAN427.

**CINE469 Special Topics in Film Theories II (3 Credits)**
Special topics in film theories.
**Repeatable to:** 6 credits.
**Formerly:** FILM469.

**CINE499 Directed Study in Cinema and Media Studies (1-3 Credits)**
Readings and Research in Film Studies under faculty supervison.
**Prerequisite:** Permission of instructor.
**Repeatable to:** 9 credits if content differs.
**Formerly:** FILM499.

# CINX - Cinema and Media Studies Education Abroad

**CINX200 Blockbusters and Bestsellers: Italian Cinema and Literature of the 21st Century (3 Credits)**
Examines some of the last three decade's most popular Italian films and novels, systematically exploring various genres such as comedy, drama, mystery, historical and epic. Explores key topics of Italian history, culture and society through an analysis of selected literary and cinematic works, with a focus on cinematic and narrative techniques as well as literary and cinematic genre criticism.
**Additional Information:** This course is offered as part of the Maryland-in-Perugia study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11294. Education Abroad processes registrations for this course on behalf of students.

**CINX201 Cosa Nostra: Cinema and History of the (Anti)Mafia (3 Credits)**
Examines the "Cosa Nostra", or Sicilian Mafia through historical, social, and cultural perspectives. Explores the progression of the Sicilian Mafia from the Risorgimento to the present day, the myths and legends surrounding the group, and efforts by US and Italian law enforcement and collaborators to fight organized crime through analysis of important American and Italian films portraying mafia culture.
**Additional Information:** This course is offered as part of the Maryland-in-Perugia study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11294. Education Abroad processes registrations for this course on behalf of students.

**CINX202 Italian Cinema from Neorealism to Netflix (3 Credits)**
Examines some of the most important Italian films from the post-World War II era to the present day, covering ideological and aesthetic rules of film art, and reviewing and expanding upon the most important elements of film technique as well as essential topics in the field of film theory and criticism. Explores the roots of Italian cinema, analyzes Neorealism and examines the most important directors and genres, considering recent small-screen productions from HBO/RAI television and Netflix.
**Additional Information:** This course is offered as part of the Maryland-in-Perugia study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11294. Education Abroad processes registrations for this course on behalf of students.

**CINX301 Glued to the Screen: TV Shows, Norms, and Culture (3 Credits)**
Introduces the notion of TV as a cultural forum, a social regulator, and a social critique. Using examples from American, Scandinavian, and also British television, we will analyze how TV operates by working through social issues, and how TV shows mirror societal concerns and assumptions.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**CINX302 Spain In Cinema: Global and Local Perspectives (3 Credits)**
This course examines both Spanish cinematography and foreign/transnational audiovisual productions related to Spanish culture. The transdisciplinary approach includes film studies, sociology, history, anthropology and art theory, while also applying cultural and cross-cultural studies and post-colonialist views.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**CINX304 London on Film: Representing the City in British and American Films (3 Credits)**
Introduces students to key aspects of British film history and culture through consideration of the significance and meaning of London within British film culture. Students will compare and contrast the representation of London by different filmmakers in different eras, examine the social, cultural, and industrial factors that influence the making and reception of films, explore the concepts of "space" and "place", and draw links between London's history and its representation in films.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**CINX305 Spanish Cinema (3 Credits)**
One of the clearest representations of a country's culture, along with its art, society and customs, is cinema. This course explores how cinema represents key aspects of Spanish history, politics, lifestyle, and community through the analysis of film format, aesthetics, and historical influences, as well as the production of a short film.
**Additional Information:** This course is offered as part of the Maryland-in-Sevilla study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/10249. Education Abroad processes registrations for this course on behalf of students.

**CINX310 Mafia, Murder, and Mystery: Crime in Italian and American Cinema (3 Credits)**
Studies how mafia and organized crime are presented in Italian and American cinematic texts. The course will examine the different expressions of the crime film genre, which dates back to the beginnings of filmmaking, focusing on the technical, visual, and aesthetic aspects of crime films.
**Cross-listed with:** ENGX310.
**Additional Information:** This course is offered as part of the Maryland-in-Perugia study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMPerugia. Education Abroad processes registrations for this course on behalf of students.

**CINX311 Japanese Film: History, Culture, and Fantasy (3 Credits)**
Examines a range of Japanese films spanning the second half of the 20th century, and situates them within their social, cultural and industrial contexts. Key periods in Japanese History will be introduced and the purpose and effect of their representation in films considered. Focusing on samurai period dramas, the rich Japanese tradition of ghost stories, and the Japanese animated film, we will think about how cultural practices, values and ideologies are refracted, circulated, enforced, and critiqued.
**Additional Information:** This course is offered as part of the ARHU-in-London study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/ARHULondon. Education Abroad processes registrations for this course on behalf of students.

**CINX316 Introduction to Filmmaking (3 Credits)**
Explores the fundamentals of fiction filmmaking to students with little to no experience. Learn how to create film story ideas, plan a shoot, basic shooting techniques, as well as basic video editing. Explores topics including: understanding the formal foundations of cinematic storytelling, scene pre-visualization using blocking and shooting diagrams, the basic skills of shooting on location, as well as the basic techniques of film editing using a mixture of lectures and analysis workshops, as well as hands-on shooting and editing exercises.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

# CLAS - Classics

**CLAS169 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**CLAS170 Ancient Myths and Modern Lives (3 Credits)**
What are myths and why do we tell them? What powers do myths have? We will tackle these questions by looking at the enduring and fascinating myths from ancient Greece and Rome. In addition to studying how they shaped ancient societies, we will also look at their modern influence and reflect upon the power that myths still hold in our contemporary world. Taught in English.
**Cross-listed with:** RELS170.
**Credit Only Granted for:** CLAS170 or RELS170.
**Additional Information:** This course cannot be taken for language credit.

**CLAS171 Classical Myths in Europe (1 Credit)**
The role which Classical Myths have played in the arts, architecture and politics of a major European city. This will only be offered through the study abroad program.

**CLAS180 Discovering the World of Ancient Greece (3 Credits)**
An exploration of the cultural traits and developments of ancient Greek civilization and its forerunners, from the Bronze Age Mycenaeans and Minoans, through the rise of the classical Greek city-states, to the expansion of Greek cultural influence in the wake of the conquests of Alexander the Great. Drawing upon the evidence of the archaeological remains as well as ancient historical and literary documents, students gain a basic familiarity with the principal monuments and artifacts of classical Greek civilization, the various institutions and values that characterized the Greeks, and the significant historical events that transformed the culture over the course of antiquity.

**CLAS190 Discovering the World of Ancient Rome (3 Credits)**
An exploration of the cultural traits and developments of ancient Roman civilization from its roots in Etruscan culture, through the rise of the Roman Republic, to the expansion of Roman cultural influence in the ancient world and the emergence of the Roman Empire. Drawing upon the evidence of the archaeological remains as well as ancient historical and literary documents, students gain a basic familiarity with the principal monuments and artifacts of ancient Roman civilization, the various institutions and values that characterized the Romans, and the significant historical events that transformed the culture over the course of antiquity.
**Cross-listed with:** HIST219T.
**Credit Only Granted for:** CLAS190 or HIST219T.

**CLAS269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**CLAS274 What is Romance? (3 Credits)**
What is romance? This course approaches the question by reading ancient Greek romance novels in tandem with works inspired by them from a range of times and places. We will attempt to identify which traits define romance in a society and how romance narratives change in translation and adaptation.

**CLAS275 Why do we laugh? (3 Credits)**
An introduction to the breadth and complexity of humor's role in society. Students will explore ancient Greek and Roman comedies side-by-side with contemporary sitcoms and movies, to learn the explanations that various disciplines have offered about why we laugh, and to understand the major impact humor has in how we see ourselves and our world.
**Additional Information:** All readings will be done in English translation.

**CLAS276 Are We Rome? (3 Credits)**
America, from its very origins as an independent nation, saw itself as the new Rome: its system of government is built on Roman precedents, its national buildings look as if they came from the Roman Forum, and its leisure activities take us to stadiums modeled on the Colosseum. America's relationship to Rome, however, raises its greatest anxiety: will America fall as Rome did? In 1776, the year of American independence, Edward Gibbon published his History of the Decline and Fall of the Roman Empire; America has been thinking about the trajectory of its history alongside Rome's from the very beginning.
**Credit Only Granted for:** CLAS276 or CLAS289A.
**Formerly:** CLAS289A.

**CLAS277 How Do You Feel? (3 Credits)**
Where do our emotions come from? Are they universal biological experiences, or are they shaped by the society in which we live, and therefore different from culture to culture? When do emotions serve the interests of those in power, and when do they resist dominant ideologies? These questions have fascinated scholars from a variety of fields, from linguistics to psychology to literary studies. This course posits that an analysis of artistic and cultural products can reveal important insights about these questions. We will thus read a variety of works of Greco-Roman literature with the above questions in mind, comparing these ancient texts to modern-day films, testing whether and how the portrayal of emotions has changed over time. Still, we will not neglect the discoveries from fields outside of literary studies: throughout the semester, we will periodically discuss relevant works of psychology, sociology, and more, interpreting the texts and films at hand through an interdisciplinary lens.

**CLAS305 Archaeological Methods and Practice (3 Credits)**
A team-taught, interdisciplinary course discussing theories, methods, and ethical issues in the practice of archaeology.
**Prerequisite:** ANTH240, ARTH200, or CLAS180.
**Cross-listed with:** ANTH305, ARTH305, JWST319Y.
**Credit Only Granted for:** ANTH305, ARTH305, CLAS305, or JWST319Y.

**CLAS308 The Classics in Context (1-3 Credits)**
A Study Abroad course which introduces students to the topography, archaeology and culture of the ancient Mediterranean world.
**Prerequisite:** Permission of ARHU-Classics department.
**Repeatable to:** 9 credits if content differs.

**CLAS309 Special Topics in Classical Literature (3 Credits)**
Readings in translation.
**Repeatable to:** 9 credits if content differs.

**CLAS310 Ancient Philosophy (3 Credits)**
The origins and development of philosophy and science in Ancient Greece, focusing on the pre-Socratics, Socrates, Plato and Aristotle.
**Prerequisite:** 6 credits in CLAS courses; or 6 credits in PHIL courses.
**Credit Only Granted for:** CLAS310 or PHIL310.

**CLAS311 Inventing Ancient Greek Culture (3 Credits)**
Who were the ancient Greeks, and were they the founders of Western civilization' The course examines the foundations of ancient Greece. Through an analysis of the historical, archaeological, and linguistic evidence, it sheds light on the so-called Black Athena Controversy, which raised doubts about the ancient Greek contribution to Western culture. The course also focuses on the impact of modern identity politics on scholarly discussions of antiquity and the ways in which the Culture Wars of the 1980s and 1990s have influenced analyses of the ancient Greek world.
**Cross-listed with:** HIST328D.
**Credit Only Granted for:** CLAS311 or HIST328D.

**CLAS312 The Modernity of Athenian Democracy (3 Credits)**
Examines the question of how Ancient Greek thought can be a tool for facing the challenges of the modern world. Topics such as political participation and engagement in politics, lawfulness and justice, freedom and autonomy, democracy and civic responsibility are found at the core of Ancient Greek thought. In addition to these topics, the course explores, through the teachings of ancient Greek philosophers, historians, and poets, the questions of virtue and happiness at a personal level and the pursuit of happiness at the societal level. Love and friendship are necessary virtues to shape a harmonious and prosperous polis. By studying selected excerpts from the primary sources of Ancient Greek literature in translation, the course defines the core values of democratic society from the viewpoint of the Greeks.

**CLAS313 From the Stoa to Silicon Valley: Ancient and Modern Approaches to Stoic Philosophy (3 Credits)**
Stoicism, ancient Rome's most popular philosophy, posited that virtue is the only human good and that individuals must detach themselves emotionally from the material world in order to live ethical lives. Principles of Stoic philosophy will be explored together with the wide array of artistic, political, and intellectual traditions that have drawn inspiration from it, from the Haitian revolutionary movement of the late 18th century, to the sexist "manosphere" of Reddit and Twitter, to modern cognitive-behavioral therapy.
**Cross-listed with:** PHIL313, PHPE313.
**Credit Only Granted for:** CLAS313, PHIL313, or PHPE313.

**CLAS314 Ancient Greek & Roman Cultures in Italy (3 Credits)**
A study abroad course examining ancient Greek and Roman society in Italy through direct contact with original cultural sites, monuments, and museum collections in the city of Rome and the Bay of Naples area, including Pompeii, Herculaneum, and Paestum. Topics of lectures and discussions include ancient history, archaeology, art, and architecture, as well as daily life in antiquity, urbanism, the illicit trade in antiquities, and the preservation of cultural heritage.
**Credit Only Granted for:** CLAS308G, CLAS314, or ARTH369D.
**Formerly:** CLAS308G.

**CLAS315 Greek and Roman Athletics (3 Credits)**
The origin and evolution of athletics in ancient Greece and Rome studied as recreation, as play, as education, as a profession and as mass entertainment.
**Cross-listed with:** HIST339G.
**Credit Only Granted for:** CLAS315 or HIST339G.

**CLAS316 Classical Antiquity and the Cinema (3 Credits)**
Many films, while rooted in the time and place in which they were created, draw upon themes and stories from ancient Greek and Roman literature. While the filmmakers' understandings of modern social forces affect their representations of the ancient world, the ancient works also shape the ways in which filmmakers tell their stories. Film criticism and close reading complement each other in the analysis of films and the ancient works on which they are based.
**Cross-listed with:** CINE316.
**Credit Only Granted for:** CLAS316 or CINE316.

**CLAS317 Ancient Medicine and Modern Medical Terms (3 Credits)**
Students are introduced to the linguistic roots of medical terminology through a systematic explanation of their Greek and Latin components. At the same time, they learn the intellectual roots of Western medicine by studying selected aspects of medical thought and practice in the Greek and Roman worlds, including the ideas of Hippocrates and Galen, two giants of ancient medicine. Ancient theories of body systems are introduced and compared to modern medical knowledge.

**CLAS320 Women in Classical Antiquity (3 Credits)**
A study of women's image and reality in ancient Greek and Roman societies through an examination of literary, linguistic, historical, legal, and artistic evidence; special emphasis in women's role in the family, views of female sexuality, and the place of women in creative art. Readings in primary sources in translation and modern critical writings.
**Cross-listed with:** HIST328W, WGSS320.
**Credit Only Granted for:** CLAS320, WMST320, WGSS320 or HIST328W.

**CLAS321 Science & Society in Ancient Greece & Rome (3 Credits)**
How did ancient Greek and Roman scientific practices differ from and resemble our own? How do we as historians recognize when someone is conducting scientific inquiry? What were the social and cultural contexts of scientific production in the ancient world? With a focus on the scientific practices and products of ancient Greeks and Romans from around the fifth century BCE to the second century CE, we investigate how several scientific disciplines -- including medicine, astronomy, and biology --developed under the influence of ancient social and cultural contexts, and how ancient literatures, in turn, were shaped by those working in scientific fields of inquiry. In addressing these questions special attention will be paid to the methods employed by the available sources of ancient scientists and the modes of demonstration, argumentation, and rhetoric employed in scientific texts. Readings of primary materials will be supplemented with selections of secondary scholarship.

**CLAS322 Roman Freedpersons (3 Credits)**
The literary remains of three Roman freedpersons--the editor and biographer Tiro (c. 80-4 BCE), the poet and fabulist Phaedrus (fl. 1st cen. CE), and the philosopher Epictetus (c. 55-135 CE)--give us a rare glimpse into the internal experience of persons enslaved and emancipated by Roman elites. To contextualize these experiences, we study the legal basis of Roman slavery, epigraphic self-representations, and stereotyping representations of freedpersons by free authors. We also read our authors against comparable works by freeborn analogues--the senator Cicero, the poet Horace, and the philosopher Seneca--to test the boundaries of how the identity of libertus ("freedman") affected and failed to affect our authors' literary aims. To deepen our study of how historical conditions shape the creation of freed authorship and the transmission of freed authors, we also read, and consider the conditions surrounding the publication of, American freedpersons' literature.

**CLAS330 Ancient Greek Religion: Gods, Myths, Temples (3 Credits)**
Survey of Greek religious ideas and practices as they evolve from the Bronze Age to the early Christian period.
**Cross-listed with:** RELS370.
**Credit Only Granted for:** CLAS330 or RELS370.

**CLAS331 Roman Religion: From Jupiter to Jesus (3 Credits)**
Survey of the major institutions of Roman state and private religion and of the diverse religions, including Judaism and Christianity, practiced in the Roman empire.

**CLAS340 Ancient Slavery and its American Impacts (3 Credits)**
Interrogates how slavery permeated the ancient Mediterranean societies of Greece and Rome. We will pay particular attention to how hierarchical inequalities are institutionalized, experienced, and represented and to how different marginalized and dominant groups interacted. Enslaved persons performed necessary labor in Greece and Rome and their work was essential for the formation of ancient society in agriculture, mining, domestic spaces, literature, finance, and government. Studying ancient slavery offers a chance to examine Greece and Rome from the bottom up, parsing the scant literary and material evidence for the lives and struggles of enslaved persons. We will practice several different approaches in order to tease out the systematic, economic, political, and personal effects of slavery in the ancient world. The United States of America was also founded as a slave society, and discussions of slavery in the Americas often look back to the ancient Mediterranean. The course will therefore conclude with a unit on how enslavers and abolitionists in the United States utilized and responded to slavery in antiquity.
**Cross-listed with:** HIST339J.
**Credit Only Granted for:** CLAS340 or HIST339J.

**CLAS369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**CLAS369A Ancient Greece and the Athletic Spirit (3 Credits)**
From the time of the poems of Homer to the end of the Roman Empire, exercise of the body and physical competition played an essential role in ancient Greece. Athletics was regarded as both a sphere of excellence and a form of exciting entertainment. Students will travel around Greece and study firsthand the sites, monuments, and objects that defined the ancient experience of athletics, with the aim of understanding its principal forms, the spirit and values that guided it, and its interrelationship with other aspects of society and culture.

**CLAS374 Greek Tragedy in Translation (3 Credits)**
Study and analysis of the tragedies of Aeschylus, Sophocles and Euripides with special attention to the concepts of character and of thought as conceived by Aristotle in The Poetics.

**CLAS375 Ancient Comedy (3 Credits)**
Representative plays by Aristophanes, Menander, Plautus and Terence in translation; examination of Greek tradition in Roman and postclassical periods.

**CLAS380 Archaeological Fieldwork in Greece (4 Credits)**
Students will learn about the archaeology, history and culture of Greece by participating in the archaeological investigations at Kenchreai, the eastern port of ancient Corinth. Students will learn about data analysis, artifact processing, and conservation, all important components in archaeological fieldwork. This program also gives students a rare chance to live and to learn in one of the most archaeologically rich, historically important, and naturally beautiful regions in Greece, the northeastern Peloponnese. Students will visit sites and museums throughout this region, attend seminars, and experience life in a small village. In this way they will learn not only about the practice of archaeological field research, but also about Greek history and culture from ancient to modern times. While the course focuses on southern Greece during the Roman Empire and Late Antiquity, a period of prosperity and diversity at Kenchreai and in its broader area, students will also explore cultural and historical developments that influenced other regions and longer periods, from the Bronze Age to the Modern era, including religion and cult-practice, art and iconography, settlement and the environment, and the construction of identity.
**Credit Only Granted for:** CLAS369K or CLAS380.
**Formerly:** CLAS369K.

**CLAS386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.
**Restriction:** Junior standing or higher.

**CLAS409 Classics Capstone Seminar (3 Credits)**
Comparative study of selected central aspects of both ancient Greek and Roman cultures as viewed from the standpoints of literary study, history, art history, and other fields as appropriate. Seminar format involving intensive student research.
**Restriction:** Permission of ARHU-Classics department.
**Repeatable to:** 6 credits if content differs.

**CLAS419 The Classical Tradition (3 Credits)**
Examination of the role of Greek and Roman civilization in shaping the arts and ideas of western culture.
**Repeatable to:** 9 credits if content differs.
**Credit Only Granted for:** CLAS419 or CLAS420.
**Formerly:** CLAS420.

**CLAS470 Approaches to Greek Mythology (3 Credits)**
Ancient and modern approaches to understanding Greek myth as expression of human experience, including interpretations drawn from psychology, anthropology, and comparative mythology.
**Prerequisite:** CLAS170; or permission of ARHU-Classics department.

**CLAS488 Independent Study in Classical Civilization (3 Credits)**
**Prerequisite:** Permission of ARHU-Classics department.
**Repeatable to:** 6 credits if content differs.

**CLAS499 Independent Study in Classical Languages and Literatures (1-3 Credits)**
**Prerequisite:** Permission of ARHU-Classics department.

# CLAX - Classics Education Abroad

**CLAX101 Ancient Rome: Civilization and Legacy (3 Credits)**
Introduces students to the history and culture of the Roman world, from the Rome's beginnings in myth and legend through its rise to domination of the Mediterranean world, its violent conversion from a Republic to an Empire, and the long success of that Empire down to its collapse in the fifth century A.D. Course readings are supplemented by slides, videos and an overnight field trip to Rome.

**CLAX102 Greek and Roman Mythology (3 Credits)**
Explores mythology by studying the origins and history of a people, their deities, ancestors and heroes. The stories of the gods and legendary heroes of the Greco-Roman tradition have provided the fountainhead for literature and the arts in the service of religious and political imagery down to the present. Explores literature, with extensive readings of such writers as Homer and Vergil (noting, in passing, the influence upon later literature), and the visual depiction of these myths will also be studied.
**Credit Only Granted for:** CLAS170 or CLAX102.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

# CMLT - Comparative Literature

**CMLT235 Black Diaspora Literature and Culture (3 Credits)**
Examination of key works by writers of the African Diaspora. Relationship among black people across multiple geographic spaces; Africa, the Caribbean, the United States, Europe, Latin America, and Asia. Specific historical, cultural, and literary contexts; themes such as gender, sexuality, migration, slavery, freedom, and equality. Readings may include literary texts (fiction, poetry, drama), music and film. All readings in English, but drawn from multiple languages of the black diaspora, including English, Spanish, French and Portuguese.

**CMLT242 Diversify and Multiply: Jewish Culture and the Production of an Identity (3 Credits)**
Provides students with a unique exploration of cultural products produced by a diverse array of Jewish creators of literature, comedy and film. The texts, films, and performing arts touch on the central social, economic, and cultural issues of Jews during the ages, and up to the 21st century. This course will explore Jewish creativity throughout history, as well as the Jewish encounter with modernity as a whole. We will be diving into prominent creators such as Tiffany Haddish, Larry David, Sholem Aleichem, Adam Sandler, S. Y. Abramovitsch, Judd Apatow, Philip Roth, Amy Schumer, I. B. Singer, Ben Stiller, Franz Kafka, Dan Levy, and others. Examining their creations will open a window to the diverse methods of construction of modern Jewish identities.
**Cross-listed with:** JWST272.
**Credit Only Granted for:** JWST272, CMLT242, or ISRL249G.

**CMLT269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**CMLT270 Global Literature and Social Change (3 Credits)**
Comparative study of literature through selected literary works from several non-Western cultures, viewed cross-culturally in light of particular social, political, and economic perspectives.

**CMLT275 World Literature by Women (3 Credits)**
Comparative study of selected works by women writers of several countries, exploring points of intersection and divergence in women's literary representations.
**Cross-listed with:** WGSS275.
**Credit Only Granted for:** WMST275, CMLT275 or WGSS275.
**Formerly:** WMST275.

**CMLT277 Literatures of the Americas (3 Credits)**
Comparative study of several North, South, and Central American cultures with a focus on the specificities, similarities, and divergences of their literary and cultural texts.

**CMLT280 Film Art in a Global Society (3 Credits)**
Comparative study of a variety of film traditions from around the world, including cinema from Hollywood, Europe, Asia and developing countries, with a stress on different cultural contexts for film-making and viewing.
**Cross-listed with:** CINE280.
**Credit Only Granted for:** CINE280, FILM298D or CMLT280.
**Formerly:** FILM298D.

**CMLT298 Topics in Comparative Studies (3-6 Credits)**
**Repeatable to:** 9 credits if content differs.

**CMLT369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**CMLT386 Experiential Learning (3-6 Credits)**
**Restriction:** Junior standing or higher; and permission of ARHU-English department.

**CMLT398 Special Topics in Comparative Studies (3 Credits)**
Special topics in comparitive studies.
**Repeatable to:** 9 credits if content differs.

**CMLT399E The Great Derangement: Climate, Art, and Literature (3 Credits)**
An investigation of the relationship between climate and art & literature. Introduction to ecological thinking followed by study of artistic and literary works thematically grouped by the four elements: Earth, Water, Air, and Fire. Readings from the German literary tradition (Goethe, Tieck, Stifter, Kafka, Frisch, Wolf) and contemporary research in the environmental humanities, with additional readings and viewings from elsewhere on the planet. Taught in English.
**Recommended:** 200-level General Education and/or humanities course; and sophomore standing.
**Cross-listed with:** GERS367.
**Credit Only Granted for:** GERM399E, CMLT399E, or GERS367.
**Formerly:** GERM399E.
**Additional Information:** Priority in enrollment will be given to German majors.

**CMLT469 The Continental Novel (3 Credits)**
The novel in translation from Stendhal through the existentialists, selected from literatures of France, Germany, Italy, Russia, and Spain.

**CMLT479 Major Contemporary Authors (3 Credits)**

**CMLT488 Genres (3 Credits)**
A study of a recognized literary form, such as tragedy, film, satire, literary criticism, comedy, tragicomedy, etc.
**Repeatable to:** 6 credits if content differs.

**CMLT489 Major Writers (3 Credits)**
Each semester two major writers from different cultures and languages will be studied. Authors will be chosen on the basis of significant relationships of cultural and aesthetic contexts, analogies between their respective works, and the importance of each writer to his literary tradition.

**CMLT498 Selected Topics in Comparative Studies (3 Credits)**

# CMLX - Comparative Literature Education Abroad

**CMLX300 Leonardo da Vinci: Renaissance Man and Modern Myth (3 Credits)**
Leonardo da Vinci (1452-1519) is the last great figure of Western history that masterfully fills the role of both artist and scientist. In light of this achievement, the course will discuss the artistic and scientific endeavors of Leonardo and the impact he had on the shaping of modernity.
**Additional Information:** This course is offered as part of the Maryland-in-Perugia study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMPerugia. Education Abroad processes registrations for this course on behalf of students.

**CMLX400 Catalan Culture: Art, Literature and Soccer (3 Credits)**
Offers a general introduction to modern and contemporary Catalan culture from the beginning of the twentieth to the twenty-first century. Topics covered include: nationalism, the politics of language, the avant-garde art of Salvador Dali and Miro, literature, and football (soccer).
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

# CMSC - Computer Science

**CMSC100 Bits and Bytes of Computer and Information Sciences (1 Credit)**
Students are introduced to the fields (and disciplines) of computer science and information science within a small classroom setting. They will learn to make a successful transition from high school to the university, while exploring study skills, student success plans and research opportunities.
**Cross-listed with:** INST101.
**Restriction:** For first time freshmen and first time transfer students; or permission of CMNS-Computer Science department.
**Credit Only Granted for:** CMSC100 or INST101.

**CMSC106 Introduction to C Programming (4 Credits)**
Design and analysis of programs in C. An introduction to computing using structured programming concepts. Intended for students with no or minimal programming experience.
**Prerequisite:** MATH115.
**Restriction:** Must not be in Computer Science program; and must not have completed any courses from CMSC131-499 course range.
**Credit Only Granted for:** CMSC106 or CMSC122.

**CMSC115 Gender, Race and Computing (3 Credits)**
Race and gender have shaped computing from its earliest histories to contemporary debates over bias in search algorithms, surveillance, and AI. As computational processes shape ever more dimensions of everyday life from the personal to the global scale, understanding how they operate and how power operates within them grows ever more important. Combating racism and sexism is not as simple as ensuring the pool of programmers and engineers is more diverse; structures of power are embedded in digital technologies as they are in all aspects of our society, and we must learn to perceive their operation if we hope to transform them. We will examine how racism and sexism operate in the field of computer science and in everyday uses of digital technologies, while studying how feminist and racial justice movements have created alternative approaches. This class is for anyone who wishes to better understand the relationships between digital technology, structural power, and social justice.
**Cross-listed with:** WGSS115.
**Restriction:** Must not have taken CMSC216 or higher.
**Credit Only Granted for:** WGSS115 or CMSC115.

**CMSC122 Introduction to Computer Programming via the Web (3 Credits)**
Introduction to computer programming in the context of developing full featured dynamic web sites. Uses a problem solving approach to teach basics of program design and implementation using JavaScript; relates these skills to creation of dynamic web sites; then explores both the potential and limits of web-based information sources for use in research. Intended to help relate a student's major to these emerging technologies.
**Restriction:** Must not have completed any courses from CMSC131-499 course range; and must not be concurrently enrolled in CMSC131.
**Credit Only Granted for:** CMSC106, or CMSC122.

**CMSC125 Introduction to Computing (3 Credits)**
Introduces you to the computing field as a whole. You will gain skills used across the spectrum of computing majors and learn about the great variety of routes into the various areas of study and employment in technological fields.
**Prerequisite:** Must have completed or be concurrently enrolled in MATH115 or higher.
**Restriction:** Must not be in the Computer Science program; and must not have completed any courses from CMSC131-499; and must not have completed BMGT302, IMDM127 or INST126.
**Credit Only Granted for:** IMDM127 or CMSC125.

**CMSC131 Object-Oriented Programming I (4 Credits)**
Introduction to programming and computer science. Emphasizes understanding and implementation of applications using object-oriented techniques. Develops skills such as program design and testing as well as implementation of programs using a graphical IDE. Programming done in Java.
**Corequisite:** MATH140.
**Credit Only Granted for:** CMSC131, CMSC133 or CMSC141.

**CMSC132 Object-Oriented Programming II (4 Credits)**
Introduction to use of computers to solve problems using software engineering principles. Design, build, test, and debug medium -size software systems and learn to use relevant tools. Use object-oriented methods to create effective and efficient problem solutions. Use and implement application programming interfaces (APIs). Programming done in Java.
**Prerequisite:** Minimum grade of C- in CMSC131; or must have earned a score of 5 on the A Java AP exam; or must have earned a satisfactory score on the departmental placement exam; and minimum grade of C- in MATH140.
**Credit Only Granted for:** CMSC132 or CMSC142.

**CMSC133 Object Oriented Programming I Beyond Fundamentals (2 Credits)**
An introduction to computer science and object-oriented programming for students with prior Java programming knowledge (conditionals, loops, methods). Program design, implementation, and testing using object-oriented techniques. All programming will be done in Java using a graphical IDE.
**Prerequisite:** Must have completed or be concurrently enrolled in MATH140.
**Restriction:** Permission of CMNS-Computer Science department; and student must have earned a 4 on the AP Computer Science A exam or a satisfactory score on the CMSC131 department placement exam.
**Credit Only Granted for:** CMSC131 or CMSC133.

**CMSC198 Special Topics in Computer Science for Non-Majors (1-4 Credits)**
A course designed to allow non-computer science majors and non-computer engineering majors to pursue a specialized topic or project.
**Restriction:** Must not be in Computer Science program.
**Repeatable to:** 6 credits if content differs.

**CMSC216 Introduction to Computer Systems (4 Credits)**
Introduction to the interaction between user programs and the operating system/hardware. Major topics include C programming, introductory systems programming, and assembly language. Other concepts covered include UNIX, machine data representation, thread management, optimization, and virtual memory. Programming is done in the Linux Environment.
**Prerequisite:** Minimum grade of C- in CMSC132; and minimum grade of C- in MATH141.
**Restriction:** Must be in a major within the CMNS-Computer Science department; or must be in Engineering: Computer program; or must be in the Computer Science Minor program; and Permission of CMSC - Computer Science department.

**CMSC250 Discrete Structures (4 Credits)**
Fundamental mathematical concepts related to computer science, including finite and infinite sets, relations, functions, and propositional logic. Introduction to other techniques, modeling and solving problems in computer science. Introduction to permutations, combinations, graphs, and trees with selected applications.
**Prerequisite:** Minimum grade of C- in CMSC131; and minimum grade of C- in MATH141.
**Restriction:** Must be in a major within the CMNS-Computer Science department; or must be in Engineering: Computer program; or must be in the Computer Science Minor program; and Permissions of CMSC - Computer Science department.

**CMSC298 Special Topics in Computer Science (1-4 Credits)**
A course designed to allow a lower level student to pursue a specialized topic or project.
**Restriction:** Permission of CMNS-Computer Science department.
**Repeatable to:** 6 credits if content differs.

**CMSC320 Introduction to Data Science (3 Credits)**
An introduction to the data science pipeline, i.e., the end-to-end process of going from unstructured, messy data to knowledge and actionable insights. Provides a broad overview of several topics including statistical data analysis, basic data mining and machine learning algorithms, large-scale data management, cloud computing, and information visualization.
**Prerequisite:** Minimum grade of C- in CMSC216 and CMSC250.
**Restriction:** Permission of CMNS-Computer Science department.
**Credit Only Granted for:** CMSC320, DATA320 or STAT426.

**CMSC330 Organization of Programming Languages (3 Credits)**
A study of programming languages, including their syntax, semantics, and implementation. Several different models of languages are discussed, including dynamic, scripting (e.g., Ruby, Python) functional (e.g., OCaml, Haskell, Scheme), and memory safe systems programming (e.g., Rust). Explores language features such as formal syntax, scoping and binding of variables, higher-order programming, typing, and type polymorphism. Introduces finite automata, context free grammar, parsing, lambda calculus, and basics of security attacks and software security.
**Prerequisite:** Minimum grade of C- in CMSC250 and CMSC216.
**Restriction:** Must be in a major within the CMNS-Computer Science department; or must be in the Computer Science Minor program; or must be in Engineering: Computer program; and Permission of CMSC - Computer Science department.

**CMSC335 Web Application Development with JavaScript (3 Credits)**
Provides an introduction to modern ways of developing Web Applications/Services using JavaScript for both front-end and back-end. The course covers topics on fundamental JavaScript language constructs, server-side JavaScript, back-end data persistence, and client-side JavaScript to build Web Applications that interact with Web services and back-end databases.
**Prerequisite:** Minimum grade of C- in CMSC216 and CMSC250.
**Restriction:** Permission of CMNS-Computer Science Department.
**Credit Only Granted for:** CMSC389N or CMSC335.
**Formerly:** CMSC389N.

**CMSC351 Algorithms (3 Credits)**
A systematic study of the complexity of some elementary algorithms related to sorting, graphs and trees, and combinatorics. Algorithms are analyzed using mathematical techniques to solve recurrences and summations.
**Prerequisite:** Minimum grade of C- in CMSC250 and CMSC216.
**Restriction:** Must be in a major within the CMNS-Computer Science department; or must be in Engineering: Computer program; or must be in the Computer Science Minor program; and Permission from the CMSC - Computer Science department.

**CMSC388 Special Topics in Computer Science (1-3 Credits)**
Seminar courses that allow students to pursue new and emerging areas of Computer Science.
**Restriction:** Permission of CMNS-Computer Science department.
**Repeatable to:** 6 credits if content differs.

**CMSC389 Special Topics in Computer Science (1-3 Credits)**
Seminar courses that allow students to pursue new and emerging areas of Computer Science; course may be used as electives for the undergraduate degree and minor.
**Repeatable to:** 6 credits if content differs.

**CMSC390 Honors Paper (3 Credits)**
Special study or research directed toward preparation of honors paper.
**Restriction:** Must be admitted to the Computer Science Honors Program.

**CMSC395 Teaching Techniques for Computer Science (1 Credit)**
This course will assure that teaching assistants become better skilled at applying effective teaching practices that improve the classroom environment while learning methods to implement mechanisms to improve diversity and inclusion. Legal and ethical aspects of the role will also be considered. Students in the class will be currently working as a teaching assistant and, therefore, be able to apply what they are learning immediately in their own context.
**Restriction:** Students must be hired as a teaching assistant in the Computer Science Department for the semester they are registered for the course; and permission of the Computer Science Department.

**CMSC396 Computer Science Honors Seminar (1 Credit)**
Overview of computer science research activities, techniques, and tools. Diverse research areas will be covered, including systems, networks, artificial intelligence, human-computer interaction, software engineering, graphics, vision, and theory.
**Prerequisite:** Must have admission into Computer Science Departmental Honors Program.
**Restriction:** Permission of CMNS-Computer Science department.

**CMSC398 Special Topics in Computer Science (1-3 Credits)**
Seminar courses that allow students to pursue new and emerging areas of Computer Science.
**Restriction:** Permission of CMNS-Computer Science Department.
**Repeatable to:** 6 credits if content differs.

**CMSC401 Algorithms for Geospatial Computing (3 Credits)**
An introduction to fundamental geospatial objects and geometric algorithms for spatio-temporal data processing and analysis. Point data representation and analysis: spatial data models and data structures, algorithms for spatial queries, point clustering algorithms. Surface and scalar field modeling, such as terrains: raster and triangle-based models (TINs), algorithms for building and querying TINs. Algorithms for natural and urban terrain analysis: morphology computation and visibility analysis. Applications to processing and analysis of LiDAR (Light Detection And Ranging) data in the context of terrain reconstruction, urban modeling, forest management and bathymetry reconstruction for coastal data management. Road network computation and analysis: algorithms for route computation in road networks, and for road network reconstruction from GPS and satellite data.
**Prerequisite:** GEOG276; or a minimum grade of C- in CMSC330 and CMSC351; or permission of instructor.
**Cross-listed with:** GEOG470.
**Jointly offered with:** GEOG770.
**Credit Only Granted for:** CMSC498Q, CMSC401, CMSC788I, GEOG470, GEOG498I, GEOG770, or GEOG788I.
**Formerly:** GEOG498I.

**CMSC411 Computer Systems Architecture (3 Credits)**
Input/output processors and techniques. Intra-system communication, buses, caches. Addressing and memory hierarchies. Microprogramming, parallelism, and pipelining.
**Prerequisite:** Minimum grade of C- in CMSC330; or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program.
**Restriction:** Permission of CMNS-Computer Science department.
**Credit Only Granted for:** ENEE446 or CMSC411.

**CMSC412 Operating Systems (4 Credits)**
A hands-on introduction to operating systems, including topics in: multiprogramming, communication and synchronization, memory management, IO subsystems, and resource scheduling polices. The laboratory component consists of constructing a small kernel, including functions for device IO, multi-tasking, and memory management.
**Prerequisite:** Minimum grade of C- in CMSC330 and CMSC351; and 1 course with a minimum grade of C- from (CMSC414, CMSC417, CMSC420, CMSC430, CMSC433, CMSC435, ENEE440, ENEE457).
**Restriction:** Permission of CMNS-Computer Science department; or must be in one of the following programs (Computer Science (Master's); Computer Science (Doctoral)).
**Credit Only Granted for:** CMSC412 or ENEE447.

**CMSC414 Computer and Network Security (3 Credits)**
An introduction to the topic of security in the context of computer systems and networks. Identify, analyze, and solve network-related security problems in computer systems. Fundamentals of number theory, authentication, and encryption technologies, as well as the practical problems that have to be solved in order to make those technologies workable in a networked environment, particularly in the wide-area Internet environment.
**Prerequisite:** Minimum grade of C- in CMSC330 and CMSC351; or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program.
**Restriction:** Permission of CMNS-Computer Science department.
**Credit Only Granted for:** CMSC414, ENEE459C, or ENEE457.

**CMSC416 Introduction to Parallel Computing (3 Credits)**
Introduction to parallel computing. Topics include programming for shared memory and distributed memory parallel architectures, and fundamental issues in design, development, and performance analysis of parallel programs.
**Prerequisite:** Minimum grade of C- in CMSC330 and CMSC351; or permission of instructor.
**Jointly offered with:** CMSC616.
**Restriction:** Permission of CMNS-Computer Science department.
**Credit Only Granted for:** CMSC416, CMSC498X, CMSC616, or CMSC818X.
**Formerly:** CMSC498X.

**CMSC417 Computer Networks (3 Credits)**
Computer networks and architectures. The OSI model including discussion and examples of various network layers. A general introduction to existing network protocols. Communication protocol specification, analysis, and testing.
**Prerequisite:** Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program.

**CMSC420 Advanced Data Structures (3 Credits)**
Description, properties, and storage allocation functions of data structures including balanced binary trees, B-Trees, hash tables, skiplists, tries, KD-Trees and Quadtrees. Algorithms for manipulating structures. Applications from areas such as String Processing, Computer Graphics, Information Retrieval, Computer Networks, Computer Vision, and Operating Systems.
**Prerequisite:** Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program.

**CMSC421 Introduction to Artificial Intelligence (3 Credits)**
Introduces a range of ideas and methods in AI, varying semester to semester but chosen largely from: automated heuristic search, planning, games, knowledge representation, logical and statistical inference, learning, natural language processing, vision, robotics, cognitive modeling, and intelligent agents. Programming projects will help students obtain a hands-on feel for various topics.
**Prerequisite:** Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program.

**CMSC422 Introduction to Machine Learning (3 Credits)**
Machine Learning studies representations and algorithms that allow machines to improve their performance on a task from experience. This is a broad overview of existing methods for machine learning and an introduction to adaptive systems in general. Emphasis is given to practical aspects of machine learning and data mining.
**Prerequisite:** Minimum grade of C- in CMSC320, CMSC330, and CMSC351; and 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461); and permission of CMNS-Computer Science department.

**CMSC423 Bioinformatic Algorithms, Databases, and Tools (3 Credits)**
An introduction to the main algorithms, databases, and tools used in bioinformatics. Topics may include assembly and analysis of genome sequences, reconstructing evolutionary histories, predicting protein structure, and clustering of biological data. Use of scripting languages to perform analysis tasks on biological data. No prior knowledge of biology is assumed.
**Prerequisite:** Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program.

**CMSC424 Database Design (3 Credits)**
Students are introduced to database systems and motivates the database approach as a mechanism for modeling the real world. An in-depth coverage of the relational model, logical database design, query languages, and other database concepts including query optimization, concurrency control; transaction management, and log based crash recovery. Distributed and Web database architectures are also discussed.
**Prerequisite:** Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program.

**CMSC425 Game Programming (3 Credits)**
An introduction to the principles and practice of computer game programming and design. This includes an introduction to game hardware and systems, the principles of game design, object and terrain modeling, game physics, artificial intelligence for games, networking for games, rendering and animation, and aural rendering. Course topics are reinforced through the design and implementation of a working computer game.
**Prerequisite:** Minimum grade of C- in CMSC330 and CMSC351.
**Restriction:** Permission of CMNS-Computer Science department.

**CMSC426 Computer Vision (3 Credits)**
An introduction to basic concepts and techniques in computervision. This includes low-level operations such as image filtering and edge detection, 3D reconstruction of scenes using stereo and structure from motion, and object detection, recognition and classification.
**Prerequisite:** Minimum grade of C- in CMSC330 and CMSC351 and 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461); or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program; or permission of the instructor.
**Restriction:** Permission of CMNS-Computer Science department.

**CMSC427 Computer Graphics (3 Credits)**
An introduction to 3D computer graphics, focusing on the underlying building blocks and algorithms for applications such as 3D computer games, and augmented and virtual reality (AR/VR). Covers the basics of 3D image generation and 3D modeling, with an emphasis on interactive applications. Discusses the representation of 3D geometry, 3D transformations, projections, rasterization, basics of color spaces, texturing and lighting models, as well as programming of modern Graphics Processing Units (GPUs). Includes programming projects where students build their own 3D rendering engine step-by-step.
**Prerequisite:** Minimum grade of C- in CMSC330 and CMSC351; 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461).
**Restriction:** Permission of CMNS-Computer Science department.

**CMSC430 Introduction to Compilers (3 Credits)**
Topics include lexical analysis, parsing, intermediate representations, program analysis, optimization, and code generation.
**Prerequisite:** Minimum grade of C- in CMSC330 and CMSC351; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program.

**CMSC433 Programming Language Technologies and Paradigms (3 Credits)**
Programming language technologies (e.g., object-oriented programming), their implementations and use in software design and implementation.
**Prerequisite:** Minimum grade of C- in CMSC330; or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program.
**Restriction:** Permission of CMNS-Computer Science department.

**CMSC434 Introduction to Human-Computer Interaction (3 Credits)**
Assess usability by quantitative and qualitative methods. Conduct task analyses, usability tests, expert reviews, and continuing assessments of working products by interviews, surveys, and logging. Apply design processes and guidelines to develop professional quality user interfaces. Build low-fidelity paper mockups, and a high-fidelity prototype using contemporary tools such as graphic editors and a graphical programming environment (eg: Visual Basic, Java).
**Prerequisite:** Minimum grade of C- in CMSC330 and CMSC351; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program.

**CMSC435 Software Engineering (3 Credits)**
State-of-the-art techniques in software design and development. Laboratory experience in applying the techniques covered. Structured design, structured programming, top-down design and development, segmentation and modularization techniques, iterative enhancement, design and code inspection techniques, correctness, and chief-programmer teams. The development of a large software project.
**Prerequisite:** 1 course with a minimum grade of C- from (CMSC412, CMSC417, CMSC420, CMSC430, CMSC433, ENEE447); and permission of CMNS-Computer Science department.

**CMSC436 Programming Handheld Systems (3 Credits)**
Fundamental principles and concepts that underlie the programming of handheld systems, such as mobile phones, personal digital assistants, and tablet computers. Particular emphasis will be placed on concepts such as limited display size, power, memory and CPU speed; and new input modalities, where handheld systems differ substantially from non-handheld systems, and thus require special programming tools and approaches. Students will apply these concepts and principles in the context of an existing handset programming platform.
**Prerequisite:** Minimum grade of C- in CMSC330 and CMSC351; or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program.
**Restriction:** Permission of CMNS-Computer Science department.

**CMSC451 Design and Analysis of Computer Algorithms (3 Credits)**
Fundamental techniques for designing efficient computer algorithms, proving their correctness, and analyzing their complexity. General topics include graph algorithms, basic algorithm design paradigms (such as greedy algorithms, divide-and-conquer, and dynamic programming), network flows, NP-completeness, and other selected topics in algorithms.
**Prerequisite:** Minimum grade of C- in CMSC351; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program.

**CMSC452 Elementary Theory of Computation (3 Credits)**
Techniques are developed to determine the difficulty of a problem relative to a model of computation. Topics include Finite Automata, P, NP, decidability, undecidability, and communication complexity.
**Prerequisite:** Minimum grade of C- in CMSC351; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program.

**CMSC454 Algorithms for Data Science (3 Credits)**
Fundamental methods for processing a high volume of data. Methods include stream processing, locally sensitive hashing, web search methods, page rank computation, network and link analysis, dynamic graph algorithms as well as methods to handle high dimensional data/ dimensionality reduction.
**Prerequisite:** Minimum grade of C- in CMSC330 and CMSC351.
**Restriction:** Permission of CMSC-Computer Science department.

**CMSC456 Cryptography (3 Credits)**
The theory, application, and implementation of mathematical techniques used to secure modern communications. Topics include symmetric and public-key encryption, message integrity, hash functions, block-cipher design and analysis, number theory, and digital signatures.
**Prerequisite:** (CMSC106, CMSC131, or ENEE150; or equivalent programming experience); and (2 courses from (CMSC330, CMSC351, ENEE324, or ENEE380); or any one of these courses and a 400-level MATH course, or two 400-level MATH courses); and Permission of CMNS-Mathematics department or permission of instructor .
**Cross-listed with:** MATH456, ENEE456.
**Credit Only Granted for:** MATH456, CMSC456 or ENEE456.

**CMSC457 Introduction to Quantum Computing (3 Credits)**
An introduction to the concept of a quantum computer, including algorithms that outperform classical computation and methods for performing quantum computation reliably in the presence of noise. As this is a multidisciplinary subject, the course will cover basic concepts in theoretical computer science and physics in addition to introducing core quantum computing topics.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461, PHYS274); and 1 course with a minimum grade of C- from (CMSC351, PHYS373).
**Restriction:** Permission of CMNS-Computer Science department.
**Additional Information:** No previous background in quantum mechanics is required.

**CMSC460 Computational Methods (3 Credits)**
Basic computational methods for interpolation, least squares, approximation, numerical quadrature, numerical solution of polynomial and transcendental equations, systems of linear equations and initial value problems for ordinary differential equations. Emphasis on methods and their computational properties rather than their analytic aspects. Intended primarily for students in the physical and engineering sciences.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461); and 1 course with a minimum grade of C- from (MATH241, MATH340); and 1 course with a minimum grade of C- from (CMSC106, CMSC131); and minimum grade of C- in MATH246.
**Cross-listed with:** AMSC460.
**Credit Only Granted for:** AMSC460, AMSC466, CMSC460, or CMSC466.

**CMSC466 Introduction to Numerical Analysis I (3 Credits)**
Floating point computations, direct methods for linear systems, interpolation, solution of nonlinear equations.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461); and 1 course with a minimum grade of C- from (MATH241, MATH340); and 1 course with a minimum grade of C- from (CMSC106, CMSC131); and minimum grade of C- in MATH410.
**Cross-listed with:** AMSC466.
**Credit Only Granted for:** AMSC460, CMSC460, AMSC466, or CMSC466.

**CMSC470 Introduction to Natural Language Processing (3 Credits)**
Introduction to fundamental techniques for automatically processing and generating natural language with computers. Machine learning techniques, models, and algorithms that enable computers to deal with the ambiguity and implicit structure of natural language. Application of these techniques in a series of assignments designed to address a core application such as question answering or machine translation.
**Prerequisite:** Minimum grade of C- in CMSC320, CMSC330, and CMSC351; and 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461).
**Restriction:** Permission of CMNS-Computer Science department.

**CMSC471 Introduction to Data Visualization (3 Credits)**
Datasets are becoming increasingly large and complex, requiring intuitive ways to explore and interpret them quickly and efficiently. In this case, a picture is worth a thousand words: visualizations enable us to transform data into images that are easier to understand and reason about, compared to raw numbers and raw text. Visualizations are critical tools in externalizing and organizing our knowledge and insights, whether to explore collected datasets to improve our understanding of the physical world, to assess and debug analysis/experimental workflows, or to present new and interesting results to diverse audiences. In this course we will study techniques and algorithms for creating effective visualizations based on principles from graphic design, perceptual psychology, and cognitive science. Students will learn how to design and build interactive visualizations for the web, using the D3.js (Data-Driven Documents) framework.
**Prerequisite:** Minimum grade of C- in CMSC330 and CMSC351; and permission of CMNS-Computer Science Department.
**Restriction:** Permission of the CMNS-Computer Science Department.
**Credit Only Granted for:** CMSC471 or CMSC498O.
**Formerly:** CMSC498O.

**CMSC472 Introduction to Deep Learning (3 Credits)**
An introduction to deep learning, a machine learning technique, as well as its applications to a variety of domains. Provides a broad overview of deep learning concepts including neural networks, convolutional neural networks, recurrent neural networks, generative models, and deep reinforcement learning, and an intuitive introduction to basics of machine learning such as simple models, learning paradigms, optimization, overfitting, importance of data, and training caveats.
**Prerequisite:** Minimum grade of C- or higher in CMSC330 and CMSC351; and 1 course with a minimum grade of C- or higher from (MATH240, MATH461).
**Restriction:** Permission of the CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's) program.
**Credit Only Granted for:** CMSC498L or CMSC472.
**Formerly:** CMSC498L.

**CMSC473 Capstone in Machine Learning (3 Credits)**
Semester-long project course in which each student will identify and carry out a project related to machine learning, with the goal of publishing a research paper or software tool.
**Prerequisite:** Minimum grade of C- or higher in CMSC421 or CMSC422.
**Recommended:** Background or exposure to machine learning topics is strongly encouraged.
**Restriction:** Permission of instructor and Permission of CMSC - Computer Science department.
**Credit Only Granted for:** CMSC498P or CMSC473.
**Formerly:** CMSC498P.
**Additional Information:** Students will be paired with project advisors from the UMD faculty or alternatively, an industry advisor. Students are encouraged to plan for projects results that can be published at academic conferences or will impact academic research.

**CMSC474 Introduction to Computational Game Theory (3 Credits)**
Game theory deals with interactions among agents (either human or computerized) whose objectives and preferences may differ from the objectives and preferences of the other agents. It will also provide a comprehensive introduction to game theory, concentrating on its computational aspects.
**Prerequisite:** Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program.
**Credit Only Granted for:** CMSC474, ECON414, GVPT390 or GVPT399A.

**CMSC475 Combinatorics and Graph Theory (3 Credits)**
General enumeration methods, difference equations, generating functions. Elements of graph theory, matrix representations of graphs, applications of graph theory to transport networks, matching theory and graphical algorithms.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461); and 1 course with a minimum grade of C- from (MATH241, MATH340). And permission of CMNS-Computer Science department; or permission of CMNS-Mathematics department. Cross-listed with MATH475 .

**CMSC477 Robotics Perception and Planning (3 Credits)**
A hands-on introduction to perception and planning for robotics, including rigid body transformations and rotations, dynamics and control of mobile robots/drones, graph based and sampling based planning algorithms, Bayseian and Kalman filtering, camera models and calibration, projective geometry, visual features, optical flow, pose estimation, RANSAC and Hough transform, structure from motion, visual odometry, machine learning basics, visual recognition and learning.
**Prerequisite:** 1 course from (MATH240, MATH341, MATH461); and (ENEE467 or CMSC420).
**Restriction:** Must be in the Robotics and Autonomous Systems minor; and permission of Computer Science department.

**CMSC488 Special Topics in Computer Science (1-3 Credits)**
Seminar courses that allow students to pursue new and emerging areas of Computer Science.
**Restriction:** Permission of CMNS-Computer Science department.
**Repeatable to:** 6 credits if content differs.
**Additional Information:** Course may be used as electives for the undergraduate degree and minor.

**CMSC498 Selected Topics in Computer Science (1-3 Credits)**
An individualized course designed to allow a student or students to pursue a selected topic not taught as a part of the regular course offerings under the supervision of a Computer Science faculty member. In addition, courses dealing with topics of special interest and/or new emerging areas of computer science will be offered with this number. Selected topics courses will be structured very much like a regular course with homework, project and exams. Credit according to work completed
**Restriction:** Permission of CMNS-Computer Science department.

**CMSC499 Independent Undergraduate Research (1-3 Credits)**
Students are provided with an opportunity to participate in a computer science research project under the guidance of a faculty advisor. Format varies. Students and supervising faculty member will agree to a research plan which must be approved by the department. As part of each research plan, students should produce a final paper delineating their contribution to the field.
**Restriction:** Must be in one of the following programs (Computer Science; Engineering: Computer) ; and permission of CMNS-Computer Science department.

# COMM - Communication

**COMM107 Oral Communication: Principles and Practices (3 Credits)**
A study of and practice in oral communication, including principles of interviewing, group discussion, listening, informative briefings, and persuasive speeches.
**Credit Only Granted for:** COMM107, COMM200, ENES143, INAG110, JOUR130 or THET285.

**COMM130 Professional Communication and Writing (1 Credit)**
Designed to enhance the clarity and grace of students' writing. Students will acquire knowledge of writing based on principles of style and grammar as well as argument and organizational structure across a diversity of professional writing contexts. Students will also engage in peer review of one another's writing.
**Restriction:** Must be in the Communication major.

**COMM170 Foundations of Listening (3 Credits)**
Role, process, and levels of listening behavior and the development of listening skills.

**COMM200 Critical Thinking and Speaking (3 Credits)**
Theory and practice of persuasive discourse analysis and composition. Research techniques, logical and rhetorical conceptions of argument, and technical principles for persuading in public venues.
**Credit Only Granted for:** COMM107, COMM200, ENES143, INAG110, JOUR130, OR THET285.

**COMM201 Introduction to Public Relations (3 Credits)**
Basic concepts and principles of public relations. Roles in organizations and society; history; skills and practices of public relations; theories and models of effective and ethical public relations.
**Prerequisite:** Must have completed or be concurrently enrolled in COMM130.
**Restriction:** Must be in the Communication major.

**COMM207 Oral Communication for Engineers (1 Credit)**
An exploration of oral communication skills which prepares engineers to engage in interpersonal communication in professional and international settings, communicate effectively in group environments, and deliver listenable presentations.
**Prerequisite:** ENES100.

**COMM230 Argumentation and Debate (3 Credits)**
A study of the fundamental principles of reasoning, analysis, and evidence preparation of debate briefs and presentation of standard academic debate.

**COMM250 Introduction to Communication Inquiry (3 Credits)**
An introduction to the field of communication. Definitions, models, and contexts of communication; rhetorical theory and rhetorical criticism of discourse.

**COMM269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**COMM288 Communication Internship (1-6 Credits)**
An individual experience arranged by the student with the instructor. Does not satisfy communication major requirements. 45 hours of supervised internship per credit hour with communication professional. Not a substitute for COMM386.
**Prerequisite:** Permission of ARHU-Communication department.
**Repeatable to:** 6 credits if content differs.

**COMM296 Deliberative Democracy (3 Credits)**
How do we change our politics, save democracy, and move beyond the "us vs. them" culture that divides us? This course begins with the premise that how we talk to one another and debate controversial issues can promote the public good or erode it in irreparable ways. Students in each class session will put principles of public dialogue into practice as they learn deliberative theories and skills that can help save democracy. Class readings will turn to historical case studies to frame the most controversial political issues we face today.
**Credit Only Granted for:** HNUH238A, COMM398I (Fall 2022), or COMM296.
**Formerly:** COMM398I.

**COMM298 Selected Topics in Communication (3 Credits)**
Special topical study of contemporary issues in communication.
**Repeatable to:** 6 credits if content differs.

**COMM301 Rhetorical Theories (3 Credits)**
Explores the idea of rhetoric, from antiquity to digitality. Rhetoric, as an art of moving bodies, is central to democratic self-governance: only through persuading each other can we develop a shared vision of a just and desirable future. This course tracks the genesis of rhetorical theory in the ancient world, 20th-century struggles against fascist rhetoric, and contemporary extensions of rhetoric in digital media ecologies.
**Prerequisite:** COMM130, COMM250; and one course from STAT100, BMGT230, EDMS451, CCJS200, PSYC200, or SOCY201; and one course from COMM107, COMM200, or COMM230; and must have completed or be concurrently enrolled in COMM304.
**Restriction:** Must be in the Communication major.
**Credit Only Granted for:** COMM301 or COMM401.

**COMM302 Communication Science Theories (3 Credits)**
This class introduces students to the principles of theory construction and offers a critical overview of how communication theories can be applied to solving problems in diverse social contexts, including interpersonal, intercultural, organizational, health, and/or political issues. The ultimate goal of this course is to put students in an intellectual position to understand theories more logically and critically and use them appropriately and effectively in conducting academic research and addressing social issues.
**Prerequisite:** COMM130, COMM250; and one of STAT100, BMGT230, EDMS451, CCJS200, PSYC200, or SOCY201; and one of COMM107, COMM200, or COMM230; and must have completed or be concurrently enrolled in COMM304.
**Restriction:** Must be in the Communication major.
**Credit Only Granted for:** COMM302 or COMM402.

**COMM303 Media Theory (3 Credits)**
Provides students with an introduction to media theory from multiple perspectives. We will begin by understanding how the history of mediated communication has been connected to ideology and lived experiences. Through readings, discussions, and activities, you will understand how technical, historical, economic social, and political forces have helped shape media content and the media themselves. You should also become familiar with the debate over how much influence the media have over their audiences, and what types of influences are present. The course will introduce issues relevant to consideration of media and historically underrepresented and marginalized groups, as well as individual and societal functions of the media.
**Prerequisite:** COMM130 and COMM250; and one of STAT100, BMGT230, EDMS451, CCJS200, PSYC200, or SOCY201; and one of COMM107, COMM200, or COMM230; and must have completed or be concurrently enrolled in COMM304.
**Restriction:** Must be in the Communication major.

**COMM304 Communication Research Literacy (3 Credits)**
Explores the different research traditions in the Communication discipline. This "literacy" course will develop students' ability to locate and fully comprehend Communication research and to understand how that research is conducted, reported, analyzed, and critiqued in Communication literature.
**Prerequisite:** Must have completed the Communication gateway requirements (COMM250; and one of STAT100, BMGT230, EDMS451, CCJS200, PSYC200, or SOCY201; and one of COMM107, COMM200 or COMM230). Must have completed or be concurrently enrolled in COMM130.
**Restriction:** Must be in the Communication program.

**COMM305 Qualitative Communication Research Methods (3 Credits)**
Introduces undergraduate students to the methods used in qualitative communication research. Topics covered in class include ethics, field research, reflexivity, data collection, and data analysis. Over the course of the semester, students will develop a research prospectus, engage in field research (interviews and observations), analyze qualitative data, and write/present their research.
**Prerequisite:** COMM130 and COMM304.
**Restriction:** Must be in the Communication major.

**COMM306 Rhetorical Methods in Communication (3 Credits)**
Equips students with skills for conducting research using rhetorical-critical methods. Such methods are crucial for scholars studying all kinds of public rhetoric: speeches, popular culture, photojournalism, digital media, public monuments, laws, and more. They are also instrumental for citizens engaging with elected officials, other citizens, and democratic institutions, as well as professionals who seek to create and understand persuasive discourse. This course will equip you with critical interpretive skills important to your work as a scholar, citizen, and professional.
**Prerequisite:** COMM130 and COMM304.
**Restriction:** Must be in the Communication major.

**COMM307 Quantitative Methods in Communication (3 Credits)**
Designed to introduce students to the basics of quantitative communication research methods. As such, it covers the basic principles of scientific inquiry, the process for generating research questions and hypotheses, the concept of variables, sampling methods, research designs, basics of data analyses, as well as ethics in scientific research. This course prepares students to become informed consumers of quantitative communication research.
**Prerequisite:** COMM130 and COMM304.
**Restriction:** Must be in the Communication major.
**Credit Only Granted for:** COMM400 or COMM307.
**Formerly:** COMM400.

**COMM311 Peer Consulting in Oral Communication (3 Credits)**
Provides training in the principles and practice of peer consulting in the context of the Oral Communication Center in the Department of Communication. Students will apply and integrate the knowledge and skills acquired in their fundamental studies oral communications course with new training to help their peers become outstanding listeners and speakers. Students will also engage in a group research project designed to extend knowledge in peer consulting best practices.
**Restriction:** Permission of Communication department.
**Credit Only Granted for:** COMM398C or COMM311.
**Formerly:** COMM398C.
**Additional Information:** There will be a pre-enrollment interview conducted before students are given permission to enroll in the course.

**COMM324 Communication and Gender (3 Credits)**
Explores how communication shapes constructions of gender, sex, sexuality and other identity markers. Topics include issues of oppression, identity, and power and social, political, and economic situations and examines how these issues impact our daily lives.

**COMM330 Argumentation and Public Policy (3 Credits)**
Contemporary theories of argumentation with special emphasis on methods of formulating and critiquing public policy argument.

**COMM331 News Writing and Reporting for Public Relations (3 Credits)**
Writing and researching news and information media for public relations; laboratory in news-gathering tools and writing techniques for public relations.
**Prerequisite:** COMM130 and COMM201.
**Restriction:** Must be in Communication program; and (sophomore standing; or junior standing).
**Credit Only Granted for:** JOUR201, COMM231, or COMM331.
**Formerly:** COMM231.

**COMM340 Communicating the Narrative (3 Credits)**
The role of narratives in communicating messages and development of strategies to effectively communicate the narrative form through storytelling, oral reading, and anecdotes.

**COMM341 Environmental Communication (3 Credits)**
Explores the theory and practice of talking about the environment. Students will explore how environmental discourses construct and challenge our identities and relationships with other beings as part of multiple complex and interconnected systems. Topics covered include historical and contemporary rhetorics of environmentalism, scholarly thought on discourses of nature and culture, and efforts to relocate the "center" of environmental communication by privileging the perspectives and strategies of marginalized knowledges, practices, and voices.
**Credit Only Granted for:** COMM398O or COMM341.
**Formerly:** COMM398O.

**COMM351 Public Relations Techniques (3 Credits)**
The techniques of public relations, including news releases, publications and printed materials, audio-visual techniques, speeches and special events. Application of these techniques in laboratory and field projects.
**Prerequisite:** COMM331.
**Restriction:** Must be in Communication program.

**COMM353 New Media Writing for Public Relations (3 Credits)**
Students learn the uses and influence of new media on public relations practice and expand their ability to write using new and traditional media platforms and tools
**Prerequisite:** Minimum grade of C- in COMM351.
**Restriction:** Must be in Communication program.
**Credit Only Granted for:** COMM352 or COMM353.
**Formerly:** COMM352.

**COMM354 Public Relations Programs (3 Credits)**
Analysis of eight major programs typically carried out by public relations professionals: employee relations, media relations, financial relations, member relations, governmental relations, community relations, fundraising and dealing with activist public.
**Prerequisite:** COMM201.

**COMM360 The Rhetoric of Black America (3 Credits)**
An historical-critical survey of the rhetoric of Black Americans from the colonial period to the present.

**COMM365 Social Media & Digital Culture (3 Credits)**
An examination of the relationship between social media, communication, culture, economics, and politics. Emphasizes critical analysis of social media texts, platforms, and technologies. Engages contemporary theories of digital media alongside practical lessons on social media production.

**COMM369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**COMM370 Mediated Communication (3 Credits)**
Analysis and critique of structure, performance, content, effects, and future of mediated communication.
**Prerequisite:** COMM250.
**Restriction:** Junior standing or higher.

**COMM371 Communication and Digital Media (3 Credits)**
A basic introduction to communication in the digital age. Through class lectures, assignments and projects, students will learn to effectively use new media for the purpose of strategic message creation and management used in the field of communication. Students will apply the basics of visual layout skills and the principles of visual design to create messages using words and images.
**Restriction:** Must be in Communication program.

**COMM372 Communication, Meaning, and Digital Media (3 Credits)**
An exploration of visual communication and meaning creation. A theoretical and practical application of communication concepts and techniques in the production of visual content.
**Restriction:** Must be in Communication program.

**COMM373 Communication and Digital Visual Narrative (3 Credits)**
Examination of the traditional style of visual communication, its practices and theoretical underpinnings juxtaposed against contemporary digital media aesthetics and techniques. Utilizing a variety of communication skills and new media tools, students will plan, write, shoot, edit, and upload digital visual narratives.
**Restriction:** Must be in Communication program.

**COMM374 Communicating Visually: Message Production and Digital Media (3 Credits)**
Focus on the interplay between technology, images and sound in the creation of digital content. This is a communication process by which a digital visual message evolves from conception to completion, incorporating the creative, financial and marketing tools. Students will conceive, plan, recruit and supervise digital video projects, developing a familiarity with production management technique and execution.
**Restriction:** Restricted to Communication Majors at the Universities at Shady Grove.

**COMM375 Documentary Theory and Practice (3 Credits)**
A historical and theoretical introduction to documentary films and videos. Students will explore the power of documentaries to address socially significant issues.
**Restriction:** Must be in Communication program.

**COMM376 Communication through Advocacy Short Film (3 Credits)**
Explores the theory and practice of contemporary communication and advocacy short form video.
**Restriction:** Must be in Communication program.

**COMM377 Digital Media in London (3 Credits)**
Provides students with skills in production practice while also incorporating theory and cultural studies. Students are challenged to understand societal problems around economy, race, gender, identity and power and to extend that exploration by building projects that utilize high demand skills in the digital communication and documentary professions. Students will write, record voice over, interview people, and build projects with compelling narrative structure. The projects will be an important component of their portfolio when applying to graduate school or their first professional efforts post-graduation. Classroom discussions will contain balance between practical instruction and critical discussion built around racial, social, and economic structures and systems.
**Credit Only Granted for:** COMM369D or COMM377.
**Formerly:** COMM369D.

**COMM382 Essentials of Intercultural Communication (3 Credits)**
Introduction of major theories and concepts of intercultural communication; examination of processes that make up cultural differences; and use of intercultural communication competence skills.
**Credit Only Granted for:** COMM382 or COMM482.

**COMM385 Influence (3 Credits)**
Explores contemporary theories of influence and their implications for communication practice. Topics include power and influence, logical theory, rhetorical theory, persuasion theory, framing theory, social influence theory, and propagation of influence in mediated social networks.
**Credit Only Granted for:** COMM385 or COMM498I (Spring 2014).
**Formerly:** COMM498I (Spring 2014).

**COMM386 Experiential Learning (3-6 Credits)**
Supervised internship experience with communication professionals. Relation of academic training to professional experience.
**Prerequisite:** Permission of ARHU-Communication department.
**Restriction:** Junior standing or higher; and must be in Communication program.

**COMM388 Communication Practicum (1-3 Credits)**
Supervised professional-level practice in communication.
**Prerequisite:** Permission of ARHU-Communication department.
**Repeatable to:** 3 credits if content differs.

**COMM390 Health Communication (3 Credits)**
Designed to introduce students to the academic and practical fields of health communication. It blends theoretical concepts and practical concerns that impact upon health communication processes. To be specific, this course extensively covers influential theories and models of behavior change as well as cutting-edge research on health communication interventions or campaigns, exposing students to authoritative work done in both areas. Students in this class will also learn about the process of planning a comprehensive health communication campaign and have the opportunity to work in groups to develop their own campaign plans addressing an urgent health problem.
**Credit Only Granted for:** COMM390 or COMM398E.
**Formerly:** COMM398E.

**COMM398 Selected Topics in Communication (3 Credits)**
Topical study of contemporary issues in communication.
**Repeatable to:** 6 credits if content differs.

**COMM399 Honors Thesis (3 Credits)**
**Prerequisite:** Permission of ARHU-Communication department.
**Restriction:** Must be in Communication program.
**Repeatable to:** 6 credits if content differs.

**COMM400 Research Methods in Communication (3 Credits)**
Philosophy of scientific method; role of theory; research ethics; empirical research methods (measurement, sampling, design, analysis).
**Prerequisite:** COMM250; and must have an introductory course in statistics.
**Restriction:** Must be in Communication program.
**Credit Only Granted for:** COMM400 or COMM307.

**COMM401 Interpreting Strategic Discourse (3 Credits)**
Principles and approaches for practical analysis of discourse designed to shape audience opinion.
**Prerequisite:** COMM250.
**Restriction:** Must be in Communication program.

**COMM402 Communication Theory and Process (3 Credits)**
Philosophical and conceptual analysis of communication theories.
**Prerequisite:** COMM250.
**Restriction:** Must be in Communication program.

**COMM419 Special Topics in Health Communication (3 Credits)**
Covers a variety of topics of health communication. Blends theoretical concepts and practical concerns that impact upon health communication processes. This course covers a specific topic of health communication in greater depth and applies scholarly discoveries to real-world examples.
**Prerequisite:** COMM304.
**Restriction:** Must be in the Communication Major.
**Repeatable to:** 6 credits if content differs.

**COMM420 Theories of Group Discussion (3 Credits)**
Current theory, research and techniques regarding small group process, group dynamics, leadership and decision-making.

**COMM421 Communicating Leadership (3 Credits)**
Examines the nature of leadership, theories of leadership from a communication perspective, relationships between leadership, authority, power, and ethics. Explores leadership responsibilities, commitments, and actions.

**COMM422 Communication Management (3 Credits)**
Communication policies, plans, channels, and practices in the management of the communication function in organizations.

**COMM423 Communication Processes in Conferences (3 Credits)**
Group participation in conferences, methods of problem solving, semantic aspects of language, and the function of conferences in business, industry and government settings.

**COMM424 Communication in Complex Organizations (3 Credits)**
Structure and function of communication within organizations: organizational climate and culture, information flow, networks and role relationships.

**COMM425 Negotiation and Conflict Management (3 Credits)**
Role of communication in shaping negotiation and conflict processes and outcomes.

**COMM426 Conflict Management (3 Credits)**
Role of communication in managing conflict processes.
**Recommended:** COMM425 and COMM250.

**COMM427 Crisis Communication (3 Credits)**
Explores theories and research related to communication before, during, and after a crisis. Students examine the fundamentals of organizational communication, crisis management, and strategic and crisis communication planning before examining case studies of a number of real-life crises: organizational crises, natural disasters, accidents, terrorism incidents, health crises, and major crises of credibility.

**COMM428 Special Topics Seminar in Dialogues and Deliberation (3 Credits)**
A study in public dialogue and deliberation theory and practice. This course will integrate recorded lectures, readings, videos, Public Dialogues, teamwork, and historical research.
**Prerequisite:** COMM250; and must have completed or be concurrently enrolled in COMM306.
**Restriction:** Must be in the Communication Major.
**Repeatable to:** 6 credits if content differs.

**COMM435 Theories of Interpersonal Communication (3 Credits)**
Major theoretical approaches and research trends in the study of interpersonal communication.

**COMM436 Interpersonal Arguing (3 Credits)**
An examination of face to face arguing.
**Prerequisite:** COMM400 and COMM250.
**Restriction:** Must be in Communication program.
**Credit Only Granted for:** COMM436 or COMM498I.
**Formerly:** COMM498I.

**COMM448 Special Topics in Public Relations (3 Credits)**
Courses seek to examine historical and current communication management theories, literature and practices for the purposes of understanding the business environment in which public relations/communication management operates and applying the best of these theories and practices toward the management of the public relations/communications functions of an organization.
**Prerequisite:** COMM201.
**Restriction:** Must be in the Communication Major.
**Repeatable to:** 6 credits if content differs.

**COMM449 Special Topics in Digital Communication (3 Credits)**
Explores the topics that have arisen around computers, digital technologies, the internet, big data, surveillance capitalism, and network infrastructures.
**Repeatable to:** 12 credits if content differs.

**COMM450 Ancient Worlds of Rhetoric (3 Credits)**
A survey of rhetorical theory across different cultures in antiquity. Emphasizes cultural contexts in which rhetorical acts of advising, instructing, persuading, and arguing emerge. Draws connections between ancient theories and contemporary communication problems.
**Prerequisite:** COMM250.
**Restriction:** Must be in Communication program.
**Credit Only Granted for:** COMM450 or COMM650.

**COMM452 Rhetoric, Technology, and Culture (3 Credits)**
An investigation of the intersections between rhetoric, technology, and culture. Emphasizes critical and cultural approaches to communication technologies. Draws lessons from the history of rhetoric and media to inform contemporary understandings of communication in the context of digitality.

**COMM454 Rhetoric of the 1960s (3 Credits)**
Study of key rhetoric of the 1960s. Treats rhetoric of relevant Presidents and several protest movements including civil rights, anti-war, and women's liberation. Contrasts traditional modes of argument with alternative rhetorical forms.
**Prerequisite:** COMM301.

**COMM455 Speechwriting (3 Credits)**
The study of message strategies in order to research and develop effective speech texts appropriate to speakers and their audiences in various public contexts.

**COMM456 Freedom of Speech & the First Amendment (3 Credits)**
Examines the U.S. Supreme Court's rulings on freedom of speech cases as grounded in the First Amendment to the U.S. Constitution. It also considers the political and ideological role of "freedom of speech" as a rhetoric organizing and ordering U.S. political culture.
**Credit Only Granted for:** COMM498Y or COMM456.
**Formerly:** COMM498Y.

**COMM458 Seminar in Political Communication (3 Credits)**
The examination of special topics for and theories of political communication.
**Prerequisite:** COMM250.
**Repeatable to:** 6 credits if content differs.

**COMM459 Special Topics in Science Communication (3 Credits)**
This seminar course is designed to help students learn a variety of topics of science communication.
**Repeatable to:** 6 credits if content differs.

**COMM460 Public Life in American Communities, 1634-1900 (3 Credits)**
Ways that Americans have used their voice to create public life. Focus is on the diverse social communities that have characterized American life and the place and characteristics of oral discourse in each.

**COMM461 Voices of Public Leadership in the Twentieth Century (3 Credits)**
Study of the use of speaking in the power struggles of the twentieth century. Focus is on important speakers of the century, their social and policy influence, and the struggle to expand the diversity of voices with power in the public sphere.

**COMM462 Visual Communication (3 Credits)**
The study of visual communication should change the way one sees the world. Students will observe, analyze, and critique visual images. The ascendance of images in our contemporary world will be demonstrated, methods for critically comprehending how images do persuasive work will be identified, and students will develop a vocabulary for critiquing images, and assist students in creating compelling images.
**Credit Only Granted for:** COMM462 or COMM498V.
**Formerly:** COMM498V.

**COMM468 Seminar in Mediated Communication (3 Credits)**
The examination of special topics related to the study of mediated communication.
**Restriction:** Junior standing or higher.
**Repeatable to:** 6 credits if content differs.

**COMM469 The Discourse of Social Movements (3 Credits)**
Study of key social movements that have influenced American social and political life. In alternate years the Civil Rights Movement and the Rhetoric of Women's Suffrage and Abolitionism. Consideration of how groups excluded from or marginalized in American political life affect social change.
**Recommended:** COMM301.
**Restriction:** Junior standing or higher.
**Repeatable to:** 6 credits if content differs.

**COMM470 Listening (3 Credits)**
The principles of listening behavior.

**COMM472 Nonverbal Communication (3 Credits)**
Nonverbal communication in human interaction theory and research on proxemics, kinesics and paralanguage as expression of relationship, affect and orientation within and across cultures.

**COMM475 Persuasion (3 Credits)**
Bases of persuasion, with emphasis on recent experimental developments in persuasion.

**COMM476 Language, Communication, and Action (3 Credits)**
Communication as symbolic action through the study of communication ethics. Emerging ethical principles and decision-making in public discourse, interpersonal communication, organizational communication, public relations, health communication, and crisis communication.
**Restriction:** Must be in the Communication major.

**COMM477 Discourse Analysis (3 Credits)**
Concepts of textual and discourse analysis applied to speech situations.

**COMM478 Communication Colloquium (1 Credit)**
Current trends and issues in the field of communication, stressing recent research methods. Recommended for senior and graduate student majors and minors in communication.
**Repeatable to:** 4 credits if content differs.

**COMM482 Intercultural Communication (3 Credits)**
The major variables of communication in an intercultural context: cultural, racial and national differences; stereotypes; values; cultural assumptions; and verbal and nonverbal channels.

**COMM483 Senior Seminar in Public Relations (3 Credits)**
Integration of theory, techniques and research methods into the planning and execution of public relations campaigns for specific organizations. Analysis of research on the case studies of public relations.
**Prerequisite:** COMM351; and 1 course from (COMM305, COMM306, COMM307, or COMM400).
**Additional Information:** Students who enrolled after Fall 2020 should not take COMM400 as a prerequisite.

**COMM488 Communication Portfolio Project (1 Credit)**
Preparation of the professional communication portfolio.
**Restriction:** Senior standing; and must be in Communication program.
**Repeatable to:** 3 credits if content differs.

**COMM489 Topical Research (1-3 Credits)**
Individualized research projects conducted with a faculty sponsor.
**Prerequisite:** Permission of ARHU-Communication department.
**Repeatable to:** 6 credits if content differs.

**COMM498 Seminar (3 Credits)**
Present-day communication research.
**Restriction:** Permission of instructor; and senior standing.

# COMX - Communication Education Abroad

**COMX102 Introduction to Visual Culture (3 Credits)**
Utilizes theory to understand the role of visual culture within daily lives, exploring a range of media from renaissance painting to TV, magazines, internet media, gaming and infographics. Explores visual media analysis; the evolution of visual codes; the impact of changing technologies; media literacy; information graphics literacy; meme and viral culture.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**COMX201 Social Media: an Italian Perspective (3 Credits)**
The world of social media has its own specialized vocabulary. Key terms such as "social media strategy", "followers", "engagement" and "content marketing" will form the basis of our study. Nowadays, thanks to the internet, the small market downtown has enlarged its boundaries worldwide and mere shouting louder has been replaced by advertising through social media. Hence, the title of this course: Social media, yes, but from an Italian perspective.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

**COMX300 Media and Gender (3 Credits)**
Media representations of men and women influence and affect interpretations of sexual identities, interpretations of social roles, and perceptions of equality or inequality in society. This course reviews the extent and importance of media influences through a study of representations of men and women and alternative sexualities in the popular media and advertising in the latter half of the 20th century.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**COMX311 Social Media, Social Food (3 Credits)**
What is "Social Media" and how will developing media skills help students plan successful careers in the world of food? This course will provide a perfect example of the importance of communication and social media in the food industry.
**Credit Only Granted for:** COMX200 or COMX311.
**Formerly:** COMX200.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

**COMX312 Media and Globalization (3 Credits)**
Provides students with critical perspectives on contemporary globalized media - where media are analyzed as industries, technological devices and transnational cultural flows. Adopts a comparative and historical perspective in the approach to the analysis of media and globalization. Explores how key areas history, industrialization, economics, and culture interact with contemporary international communication systems.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

# CPBE - College Park Scholars-Business, Society, and Economy

**CPBE100 College Park Scholars: Business, Society & the Economy First-Year Colloquium (1 Credit)**
Introductory colloquium: Examination of issues related to business, society and the economy.
**Restriction:** Students must be matriculated into the College Park Scholars Business, Society & the Economy (CPBE) program.

**CPBE225 Enterprise Communications (3 Credits)**
Examines basic interpersonal communication processes within written and oral channels, with practical applications for the business environment.
**Prerequisite:** CPBE100.
**Restriction:** Must be enrolled in College Park Scholars' Business, Society and the Economy (CPBE) program.
**Formerly:** CPSP220.

**CPBE230 College Park Scholars: Business, Society & the Economy Internship Practicum (1-3 Credits)**
Supervised internship project in an area related to business, society and the economy.
**Prerequisite:** CPBE100.
**Restriction:** Students must be matriculated into the College Park Scholars Business, Society & the Economy (CPBE) program.

**CPBE240 College Park Scholars: Business, Society & the Economy Service-Learning Practicum (1-3 Credits)**
Supervised Service-Learning project in an area related to business, society and the economy.
**Prerequisite:** CPBE100.
**Restriction:** Students must be matriculated into the College Park Scholars Business, Society & the Economy (CPBE) program.

**CPBE250 College Park Scholars: Business, Society & the Economy Research Practicum (1-3 Credits)**
Supervised research project in an area related to business, society and the economy.
**Prerequisite:** CPBE100.
**Restriction:** Students must be matriculated into the College Park Scholars Business, Society & the Economy (CPBE) program.

**CPBE270 Impacts of Globalization (3 Credits)**
Introduces students to key global concepts, discusses a range of perspectives on globalization and cultural competence, and offers an applied learning experience.
**Prerequisite:** CPBE100; or by permission.
**Cross-listed with:** HONR298A.
**Restriction:** Students must be matriculated into the College Park Scholars Business, Society & the Economy (CPBE) program; or by permission.
**Credit Only Granted for:** CPBE270 or HONR298A.

# CPCV - College Park Scholars-Civic Engagement for Social Good

**CPCV100 College Park Scholars: Civic Engagement for Social Good First-Year Colloquium I (1 Credit)**
Introductory colloquium: Examination of issues related to civic engagement.
**Restriction:** Must be in the College Park Scholars-Civic Engagement for Social Good (CPCV) program.
**Credit Only Granted for:** BSCV181 or CPCV100.
**Formerly:** BSCV181.

**CPCV225 Introduction to Civic Engagement for Social Good (3 Credits)**
Foundational concepts and principles of community engagement and social change.
**Restriction:** Must be in the College Park Scholars-Civic Engagement for Social Good (CPCV) program.
**Credit Only Granted for:** BSCV191or CPCV225.
**Formerly:** BSCV191.

# CPDJ - College Park Scholars-Data Justice

**CPDJ100 College Park Scholars: Data Justice First-Year Colloquium I (1 Credit)**
Colloquium I, the first course in the College Park Scholars Data Justice program curriculum, will introduce students to a wide range of information issue areas, with an overarching theme for them to consider opportunities to improve the world by making data less biased and more accessible. The deliverables are intended as low-risk opportunities to write or design in response to the topics, and to engage students every week in creating something in response to what they are learning.
**Restriction:** Must be in College Park Scholars Data Justice Program (CPDJ).

# CPET - College Park Scholars-Environment, Technology & Economy

**CPET100 College Park Scholars: Environment, Technology & Economy First-Year Colloquium I (1 Credit)**
Introductory colloquium: Examination of issues related to the convergence of the environment, technology and the economy.
**Restriction:** Students must be enrolled in the College Park Scholars Environment, Technology & Economy (CPET) program.

**CPET101 College Park Scholars: Environment, Technology & Economy First-Year Colloquium II (3 Credits)**
Introductory colloquium II: Continued examination of issues related to the convergence of the environment, technology and the economy. Group projects in sustainable development.
**Prerequisite:** CPET100.
**Restriction:** Students must be enrolled in the College Park Scholars Environment, Technology & Economy (CPET) program.

**CPET200 College Park Scholars: Environment, Technology & Economy Second-Year Colloquium (1 Credit)**
Advanced colloquium: Continued examination of issues related to sustainable development.
**Prerequisite:** CPET101.
**Restriction:** Students must be enrolled in the College Park Scholars Environment, Technology & Economy (CPET) program.

**CPET230 College Park Scholars: Environment, Technology & Economy Internship Practicum (1-3 Credits)**
Supervised internship project in an area related to the environment, technology and the economy.
**Prerequisite:** CPET200.
**Restriction:** Students must be matriculated into the College Park Scholars Environment, Technology & the Economy (CPET) program.

**CPET240 College Park Scholars: Environment, Technology & Economy Service-Learning Practicum (1-3 Credits)**
Supervised Service-Learning project in an area related to the environment, technology and the economy.
**Restriction:** Students must be matriculated into the College Park Scholars Environment, Technology & the Economy (CPET), Science, Technology & Society (CPSS), Arts (CPSA) and Business, Society, & Economy (CPBE) programs.

**CPET250 College Park Scholars: Environment, Technology & Economy Research Practicum (1-3 Credits)**
Supervised research project in an area related to the environment, technology and the economy.
**Prerequisite:** CPET200.
**Restriction:** Students must be matriculated into the College Park Scholars Environment, Technology & the Economy (CPET) program.

# CPGH - College Park Scholars-Global Public Health

**CPGH100 College Park Scholars: Global Public Health First-Year Colloquium I (1 Credit)**
Introductory colloquium: Examination of factors that determine the health status of populations around the world.
**Restriction:** Students must be enrolled in the College Park Scholars Global Public Health (CPGH) program.

**CPGH101 College Park Scholars: Global Public Health First-Year Colloquium II (1 Credit)**
Using case studies, students will examine necessary components to design successful public health interventions.
**Prerequisite:** CPGH100.
**Restriction:** Students must be enrolled in the College Park Scholars Global Public Health (CPGH) program.

**CPGH200 College Park Scholars: Global Public Health Second-Year Colloquium (1 Credit)**
Building on knowledge and skills gained from the first-year colloquia, students will develop public health interventions that address a public health issue of a particular community.
**Prerequisite:** CPGH101.
**Restriction:** Students must be enrolled in the College Park Scholars Global Public Health (CPGH) program.

**CPGH230 College Park Scholars: Global Public Health - Internship Practicum (1-3 Credits)**
Supervised internship project in an interest area related to global public health.
**Prerequisite:** CPGH200.
**Restriction:** Students must be enrolled in the College Park Scholars Global Public Health (CPGH) program.

**CPGH240 College Park Scholars: Global Public Health Service-Learning Practicum (1-3 Credits)**
Supervised Service-Learning project in an interest area related to global public health.
**Prerequisite:** CPGH200.
**Restriction:** Students must be enrolled in the College Park Scholars Global Public Health (CPGH) program.

**CPGH250 College Park Scholars: Global Public Health Research Practicum (1-3 Credits)**
Supervised research project in an interest area related to global public health.
**Prerequisite:** CPGH200.
**Restriction:** Students must be enrolled in the College Park Scholars Global Public Health (CPGH) program.

**CPGH270 College Park Scholars: Global Public Health Education Abroad Practicum (1-3 Credits)**
Education abroad experience in an interest area related to global public health.
**Prerequisite:** CPGH200.
**Restriction:** Students must be enrolled in the College Park Scholars Global Public Health (CPGH) program.

# CPJT - College Park Scholars-Justice and Legal Thought

**CPJT100 College Park Scholars: Justice & Legal Thought: First-Year Colloquium (1 Credit)**
Students will gain an experiential understanding of law and justice by investigating concepts and frameworks of justice and apply them to real-world experience.
**Restriction:** Students must be enrolled in the College Park Scholars Justice & Legal Thought (CPJT) program.

**CPJT101 Colloquium in Justice and Legal Thought (1 Credit)**
An exploration of contemporary issues related to justice and legal thought.

**CPJT200 Justice and legal Thought Second Year Colloquium (1 Credit)**
Advanced colloquium for second year students related to research skill development
**Restriction:** Students must be enrolled in the College Park Scholars Justice and Legal Thought (CPJT) program.
**Additional Information:** When combined with the first year CPJT colloquia, students will learn how to research issues discussed and debated throughout year one.

**CPJT230 Capstone for Justice and Legal Thought: Internship (2-3 Credits)**
The capstone of the four-semester College Park Scholars Justice and Legal thought citation program is an exploration of justice and law within a rigorous academic and experiential framework. Students must develop and perform practicum internships in professional law related settings. In all settings, students must interact directly with legal professionals in law related fields and through law-related institutions under the supervision of legal professionals and program staff. In conjunction with the experiential component, students will synthesize their experience within the learning outcomes of the Justice and Legal Thought Program through an innovative final project culminating in a poster presentation.

**CPJT240 Capstone for Justice and Legal Thought: Service-Learning (2 Credits)**
The capstone of the four-semester College Park Scholars Justice and Legal Thought citation program is an exploration of justice and law within a rigorous academic and experiential framework. Students must develop and perform practicum volunteer experiences in professional law related settings. In all settings, students must interact directly with legal professionals in law related fields and through law-related institutions under the supervision of legal professionals and program staff. In conjunctions with the experiential component, students will synthesize their experience within the learning outcomes of the Justice and Legal Thought program through an innovative final project culminating in a poster presentation.

**CPJT250 Capstone for Justice and Legal Thought: Research (2 Credits)**
The capstone of the four-semester College Park Scholars Justice and Legal Thought citation program is an exploration of justice and law within a rigorous academic and experiential framework. Students must develop and perform applied research in a law related setting. Students must interact directly with legal professionals under the supervision of program staff. Students will synthesize their experience within the learning outcomes of the Justice and Legal Thought Program through an innovative final research project culminating in a poster presentation.

# CPMS - College Park Scholars-Media, Self and Society

**CPMS100 College Park Scholars: Media, Self & Society First-Year Colloquium I (1 Credit)**
Introductory colloquium: Examination of issues related to the media.
**Restriction:** Students must be enrolled in the College Park Scholars Media, Self & Society (CPMS) program.

**CPMS101 College Park Scholars: Media, Self & Society First-Year Colloquium II (1 Credit)**
Examination of the media's coverage of topical issues.
**Prerequisite:** CPMS100.
**Restriction:** Students must be enrolled in the College Park Scholars Media, Self & Society (CPMS) program.

**CPMS225 Analyzing Media Practice through Theory (3 Credits)**
Media analysis investigating patterns of ownership, the working of media organizations, patterns of coverage and the nature of audiences.
**Prerequisite:** CPMS100.
**Restriction:** Must be in the Scholars Media, Self & Society Program.
**Formerly:** CPSP222.

**CPMS230 College Park Scholars: Media, Self & Society - Internship Practicum (1-3 Credits)**
Supervised internship project in an area related to media, self and society.
**Prerequisite:** CPMS101.
**Restriction:** Students must be enrolled in the College Park Scholars Media, Self & Society (CPMS) program.

**CPMS240 College Park Scholars: Media, Self & Society - Service-Learning Practicum (1-3 Credits)**
Supervised Service-Learning project in an area related to media, self and society.
**Prerequisite:** CPMS101.
**Restriction:** Students must be enrolled in the College Park Scholars Media, Self & Society (CPMS) program.

# CPPL - College Park Scholars-Public Leadership

**CPPL100 College Park Scholars: Public Leadership First-Year Colloquium I (1 Credit)**
Introductory colloquium: Examination of issues related to public leadership.
**Restriction:** Students must be enrolled in the College Park Scholars Public Leadership (CPPL) program.

**CPPL101 College Park Scholars: Public Leadership First-Year Colloquium II (1 Credit)**
Continued examination of issues related to public leadership. Development of team, community-based learning project proposals.
**Prerequisite:** CPPL100.
**Restriction:** Students must be enrolled in the College Park Scholars Public Leadership (CPPL) program.

**CPPL200 College Park Scholars: Public Leadership - Applied Leadership Capstone I (1 Credit)**
Planning and initiation of team, community-based-learning projects.
**Prerequisite:** CPPL101.
**Restriction:** Students must be enrolled in the College Park Scholars Public Leadership (CPPL) program.

**CPPL201 College Park Scholars: Public Leadership - Applied Leadership Capstone II (2 Credits)**
Implementation and evaluation of team, community-based-learning projects.
**Prerequisite:** CPPL200.
**Restriction:** Students must be enrolled in the College Park Scholars Public Leadership (CPPL) program.

# CPSA - College Park Scholars-Arts

**CPSA100 College Park Scholars: Arts First-Year Colloquium I (1 Credit)**
Introductory colloquium: Aesthetic, intellectual and personal examination of the arts.
**Restriction:** Students must be matriculated into the College Park Scholars Arts (CPSA) program.

**CPSA101 College Park Scholars: Arts First-Year Colloquium II (1-2 Credits)**
Introductory colloquium II: Arts workshops and Arts Festival.
**Prerequisite:** CPSA100.
**Restriction:** Students must be matriculated into the College Park Scholars Arts (CPSA) program.

**CPSA149 College Park Scholars: Arts Service-Learning Outreach (2 Credits)**
Service-Learning outreach to Prince George's County schools and non-profit agencies.
**Restriction:** Students must be matriculated into the College Park Scholars Arts (CPSA) program.
**Repeatable to:** 6 credits.

**CPSA200 College Park Scholars: Arts Second-Year Colloquium I (1 Credit)**
Advanced colloquium I: Examination of the arts in society; and preparation for "Scholarship-in-Practice" project.
**Prerequisite:** CPSA101.
**Restriction:** Students must be matriculated into the College Park Scholars Arts (CPSA) program.
**Additional Information:** When paired with successful completion of CPSA 240, 250 or 260, students will earn General Education Scholarship-in-Practice credit.

**CPSA201 College Park Scholars: Arts Second-Year Colloquium II (1-2 Credits)**
Advanced colloquium II: Arts workshop and Arts Festival.
**Prerequisite:** CPSA200.
**Restriction:** Students must be matriculated into the College Park Scholars Arts (CPSA) program.

**CPSA240 College Park Scholars: Arts Service-Learning Practicum (2 Credits)**
Supervised Service-Learning project in an area related to the arts.
**Prerequisite:** CPSA200.
**Restriction:** Students must be matriculated into the College Park Scholars Arts (CPSA) program.
**Additional Information:** When paired with successful completion of CPSA 200, students will earn General Education Scholarship-in-Practice credit.

**CPSA250 College Park Scholars: Arts Research Practicum (2 Credits)**
Supervised research project in an area related to the arts.
**Prerequisite:** CPSA200.
**Restriction:** Students must be matriculated into the College Park Scholars Arts (CPSA) program.
**Additional Information:** When paired with successful completion of CPSA 200, students will earn General Education Scholarship-in-Practice credit.

**CPSA260 College Park Scholars: Arts Peer-Teaching Practicum (2 Credits)**
Supervised peer-teaching project in an area related to the arts.
**Prerequisite:** CPSA200.
**Restriction:** Students must be matriculated into the College Park Scholars Arts (CPSA) program.
**Additional Information:** When paired with successful completion of CPSA 200, students will earn General Education Scholarship-in-Practice credit.

# CPSD - College Park Scholars-Science, Discovery & the Universe

**CPSD100 College Park Scholars: Science, Discovery & the Universe First-Year Colloquium A (1 Credit)**
Introductory colloquium: Examination of issues related to science, discovery and the universe.
**Restriction:** Students must be enrolled in the College Park Scholars Science, Discovery & the Universe (CPSD) program.
**Additional Information:** Both freshman colloquia (CPSD 100 and 101) are required for students to earn their College Park Scholars citations; however, they can be taken in any order during a student's first year.

**CPSD101 College Park Scholars: Science, Discovery & the Universe First-Year Colloquium B (1 Credit)**
Introductory colloquium: Examination of the intersection of astronomy and culture; and the roles of science, exploration and communication in the process of discovery.
**Restriction:** Students must be enrolled in the College Park Scholars Science, Discovery & the Universe (CPSD) program.
**Additional Information:** Both freshman colloquia (CPSD 100 and 101) are required for students to earn their College Park Scholars citations; however, they can be taken in any order during a student's first year.

**CPSD200 College Park Scholars: Science, Discovery & the Universe Second-Year Colloquium (1 Credit)**
Advanced colloquium: Continued examination of issues related to science, discovery and the universe.
**Prerequisite:** CPSD100 and CPSD101.
**Restriction:** Students must be enrolled in the College Park Scholars Science, Discovery & the Universe (CPSD) program.

**CPSD230 College Park Scholars: Science, Discovery & the Universe - Internship Practicum (1-3 Credits)**
Supervised internship project in an interest area related to science, discovery and the universe.
**Prerequisite:** CPSD200.
**Restriction:** Students must be enrolled in the College Park Scholars Science, Discovery & the Universe (CPSD) program.

**CPSD240 College Park Scholars: Science, Discovery & the Universe - Service-Learning Practicum (1-3 Credits)**
Supervised Service-Learning project in an interest area related to science, discovery and the universe.
**Prerequisite:** CPSD200.
**Restriction:** Students must be enrolled in the College Park Scholars Science, Discovery & the Universe (CPSD) program.

**CPSD250 College Park Scholars: Science, Discovery & the Universe - Research Practicum (1-3 Credits)**
Supervised research project in an interest area related to science, discovery and the universe.
**Prerequisite:** CPSD200.
**Restriction:** Students must be enrolled in the College Park Scholars Science, Discovery & the Universe (CPSD) program.

# CPSF - College Park Scholars-Life Sciences

**CPSF100 College Park Scholars: Life Sciences First-Year Colloquium I (1 Credit)**
Introductory colloquium: Examination of issues related to the life sciences.
**Restriction:** Students must be enrolled in the College Park Scholars Life Sciences (CPSF) program.

**CPSF101 College Park Scholars: Life Sciences First-Year Colloquium II (1 Credit)**
Further examination of issues related to the life sciences.
**Prerequisite:** CPSF100.
**Restriction:** Students must be enrolled in the College Park Scholars Life Sciences (CPSF) program.

**CPSF200 College Park Scholars: Life Sciences Second-Year Colloquium (1 Credit)**
This course is the final of a three-semester sequence within the College Park Scholars- Life Sciences Program. In the first semester, our content focused on community; we built community as a program of unique individuals to create a common identity and discussed the ways in which the science community exists. The second semester allowed us to explore the life sciences through our lenses of curiosity; we asked big questions and moved toward big answers. This semester is focused on engagement. We will take time to be fully present in the life sciences community and learn why it is important to gain practical knowledge and experiences to further the goals and aims of science.
**Prerequisite:** CPSF101.
**Restriction:** Must be in the College Park Scholars Life Sciences program.
**Credit Only Granted for:** CPSF200 or CPSP218L.
**Formerly:** CPSP218L.

# CPSG - College Park Scholars-Science and Global Change

**CPSG100 College Park Scholars: Science & Global Change First-Year Colloquium I (1 Credit)**
Introductory colloquium: Examination of issues related to science and global change.
**Restriction:** Students must be enrolled in the College Park Scholars Science & Global Change (CPSG) program.

**CPSG101 College Park Scholars: Science & Global Change First-Year Colloquium II (1 Credit)**
Introductory colloquium II: Continued examination of issues related to science and global change.
**Prerequisite:** CPSG100.
**Restriction:** Students must be enrolled in the College Park Scholars Science & Global Change (CPSG) program.

**CPSG200 College Park Scholars: Science & Global Change Second-Year Colloquium (1 Credit)**
Advanced colloquium: Continued examination of issues related to science and global change.
**Prerequisite:** CPSG101.
**Restriction:** Students must be enrolled in the College Park Scholars Science & Global Change (CPSG) program.

**CPSG230 College Park Scholars: Science & Global Change - Internship Practicum (1-3 Credits)**
Supervised internship in an interest area related to science and global change.
**Prerequisite:** CPSG200.
**Restriction:** Students must be enrolled in the College Park Scholars Science & Global Change (CPSG) program.

**CPSG240 College Park Scholars: Science & Global Change - Service-Learning Practicum (1-3 Credits)**
Supervised Service-Learning experience in an interest area related to science and global change.
**Prerequisite:** CPSG200.
**Restriction:** Students must be enrolled in the College Park Scholars Science & Global Change (CPSG) program.

**CPSG250 College Park Scholars: Science & Global Change - Research Practicum (1-3 Credits)**
Supervised research experience in an interest area related to science and global change.
**Prerequisite:** CPSG200.
**Restriction:** Students must be enrolled in the College Park Scholars Science & Global Change (CPSG) program.

# CPSN - College Park Scholars-International Studies

**CPSN100 College Park Scholars: International Studies First-Year Colloquium I (1 Credit)**
Introductory colloquium: Examination of issues related to international studies.
**Restriction:** Students must be enrolled in the College Park Scholars International Studies (CPSN) program.

**CPSN101 College Park Scholars: International Studies First-Year Colloquium II (1 Credit)**
Introductory colloquium II: Continued examination of issues related to international studies.
**Prerequisite:** CPSN100.
**Restriction:** Students must be enrolled in the College Park Scholars International Studies (CPSN) program.
**Additional Information:** When paired with the successful completion of CPSN 100, students will earn Diversity/Cultural Competence General Education credits.

**CPSN230 College Park Scholars: International Studies - Internship Practicum (1-3 Credits)**
Supervised internship project in an area related to international studies.
**Prerequisite:** CPSN101.
**Restriction:** Students must be enrolled in the College Park Scholars International Studies (CPSN) program.

**CPSN240 College Park Scholars: International Studies - Service-Learning Practicum (1-3 Credits)**
Supervised Service-Learning project in an area related to international studies.
**Prerequisite:** CPSN101.
**Restriction:** Students must be enrolled in the College Park Scholars International Studies (CPSN) program.

**CPSN250 College Park Scholars: International Studies - Research Practicum (1-3 Credits)**
Supervised research in an area related to international studies.
**Prerequisite:** CPSN101.
**Restriction:** Students must be enrolled in the College Park Scholars International Studies (CPSN) program.

# CPSP - College Park Scholars Program

**CPSP118 College Park Scholars First-Year Colloquium I (1-3 Credits)**
Introductory colloquium for specific College Park Scholars Program.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 3 credits.

**CPSP119 College Park Scholars First-Year Colloquium II (1-3 Credits)**
Intermediate colloquium for specific College Park Scholars Programs.
**Prerequisite:** CPSP118.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 3 credits.

**CPSP218 College Park Scholars Second-Year Colloquium I (1-3 Credits)**
Colloquium for specific College Park Scholars Program.
**Prerequisite:** CPSP118.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 3 credits.

**CPSP219 College Park Scholars Second-Year Colloquium II (1-3 Credits)**
Intermediate colloquium for specific, second year, College Park Scholars Program.
**Prerequisite:** CPSP218.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 3 credits if content differs.

**CPSP229 Practicum: Online Communication (1-3 Credits)**
Supervised practicum in Website development.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 3 credits if content differs.

**CPSP239 Practicum: Internship (1-3 Credits)**
Supervised internship in interest area related to the theme of the students' College Park Scholars program.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 3 credits.

**CPSP249 Practicum: Service-Learning (1-3 Credits)**
Supervised Service-Learning project in area related to the theme of the students' College Park Scholars program.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 3 credits.

**CPSP259 Practicum: Research (1-3 Credits)**
Supervised research project in interest area related to the students' College Park Scholars program.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 3 credits.

**CPSP269 Practicum: Peer Teaching (1-3 Credits)**
Supervised peer teaching in students' College Park Scholars program.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 3 credits.

**CPSP279 Practicum: Study Abroad (1-3 Credits)**
Supervised international experience that satisfies students' College Park Scholars practicum requirement.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 3 credits if content differs.

**CPSP318 College Park Scholars Special Topics (1-3 Credits)**
Special Topics learning opportunities in College Park Scholars.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 3 credits.

**CPSP339 Advanced Practicum: Internship (1-3 Credits)**
Independent study designed for students who wish to extend in greater depth and detail projects begun in sophomore year. Subject varies. Overseen by faculty director or mentor.
**Prerequisite:** CPSP239.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 3 credits.

**CPSP349 Advanced Practicum: Service Learning (1-3 Credits)**
Advanced supervised Service-Learning project.
**Prerequisite:** CPSP249.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 3 credits.

**CPSP359 Advanced Practicum: Research (1-3 Credits)**
Advanced supervised internship experience.
**Prerequisite:** CPSP259.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 3 credits.

**CPSP369 Advanced Practicum: Peer Teaching (1-3 Credits)**
Supervised advanced practicum in peer instruction.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 6 credits.

**CPSP379 Advanced Practicum: Study Abroad (1-3 Credits)**
Advanced, supervised study-abroad experience.
**Restriction:** Must be in the College Park Scholars Program; or permission of UGST-College Park Scholars.
**Repeatable to:** 3 credits if content differs.

**CPSP386 Experiential Learning (3-6 Credits)**

**CPSP388 Advanced Special Topics in College Park Scholars (1-3 Credits)**
Interdisciplinary topics of special interest to College Park Scholars, such as legacies of the cold war, environmental ethics, women in leadership, and other timely issues. Projects build on previous work in College Park Scholars.
**Restriction:** Must be in the College Park Scholars Program.
**Repeatable to:** 6 credits if content differs.

# CPSS - College Park Scholars-Science, Technology and Society

**CPSS100 College Park Scholars: Science, Technology & Society First-Year Colloquium I (2 Credits)**
Introductory colloquium: Examination of issues related to science, technology and society.
**Restriction:** Students must be enrolled in the College Park Scholars Science, Technology & Society (CPSS) program.

**CPSS101 College Park Scholars: Science, Technology & Society First-Year Colloquium II (1 Credit)**
Continued examination of issues related to science, technology and society.
**Prerequisite:** CPSS100.
**Restriction:** Students must be enrolled in the College Park Scholars Science, Technology & Society (CPSS) program.

**CPSS220 The Future of Communicating Science (3 Credits)**
How can scientists communicate their work effectively? The field of science communication ventures that the answer is not simply a matter of improving capacity (e.g., because people lack scientific information, scientists lack communication skills, or both). Rather, it calls for sustained collaboration and empathy between laypersons and experts. In this hands-on, experiential course, we use a model of cultural competency to put forth solutions to bridge the expert-lay divide. We investigate typical venues in which science is communicated (museums, YouTube videos, federal agency websites, and much much more) and study best practices for communication. Then we explore emerging venues that support sustained contact between so-called "lay citizens" and scientific or technical experts (dance/improv techniques, ethnographic methods and citizen science). Students learn to use cross-cultural perspectives as a basis to pilot and test ways of strengthening relationships and improving communication.
**Restriction:** Must be in the College Park Scholars Science, Technology or Society program or have permission of the program.

**CPSS225 College Park Scholars Capstone: Science, Technology, and Society (3 Credits)**
Exploration and understanding of ways science and technology shape and are shaped by society.
**Prerequisite:** CPSS100.
**Restriction:** Must be in the College Park Scholars Science, Technology & Society (CPSS) program.
**Formerly:** CPSP227.

**CPSS230 College Park Scholars: Science, Technology & Society - Internship Practicum (1 Credit)**
Supervised internship in an area related to science, technology and society.
**Prerequisite:** CPSS101.
**Restriction:** Matriculation into the College Park Scholars Science, Technology & Society (CPSS) program.

**CPSS240 College Park Scholars: Science, Technology & Society - Service-Learning Practicum (3 Credits)**
Supervised Service-Learning practicum in issues related to science, technology and society.
**Restriction:** Matriculation into the College Park Scholars Science, Technology & Society (CPSS) program; or permission of instructor.

**CPSS260 College Park Scholars: Science, Technology & Society - Peer-Teaching Practicum (1 Credit)**
Supervised peer teaching in science, technology and society.
**Prerequisite:** CPSS101.
**Restriction:** Matriculation into the College Park Scholars Science, Technology & Society (CPSS) program.

**CPSS270 Education Abroad Practicum: Chip Technologies in Taiwan (3 Credits)**
This education abroad course provides a comprehensive exploration of Taiwan's pivotal role in the global semiconductor industry. Students will gain insights into the history, engineering culture, and impact of chip technologies on Taiwan's economy and international relations. Through lectures, discussions, readings, and field-based research and practice, students will develop a deep understanding of the semiconductor ecosystem, its challenges, and opportunities, and its influence on the world.

**CPSS340 College Park Scholars: Infrastructure and Society (3 Credits)**
One of the most important, and underappreciated, aspects of our society is its infrastructure (roads, buildings, communication systems, water delivery systems, sanitation systems, energy systems, etc.). We often take for granted the services infrastructure bring us. As a consequence, the United States, which at one time was a world leader in creating infrastructure, is experiencing an infrastructure crisis. Furthermore, not everyone experiences this issue equally. This course is designed to identify the root causes of the crisis. You will explore emerging social, political, legal, cultural, and social justice issues associated with the building and maintenance of infrastructure from the perspective of Science and Technology Studies (STS) and engineers. You will work with a volunteer corps of professional engineers from a variety of disciplines on a service-learning project designed to assess the safety and vitality of infrastructure.
**Restriction:** Must be currently enrolled in a College Park Scholars program.
**Credit Only Granted for:** CPSP349T or CPSS340.
**Formerly:** CPSP349T.

# DANC - Dance

**DANC109 Choreography I: Improvisation (3 Credits)**
An introduction to the process of spontaneous movement discovery involving solo and group movement experiences.
**Restriction:** Must be in Dance program; or permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits if content differs.

**DANC118 Beginning Tap (2 Credits)**
Introduction to tap for the beginning student.
**Repeatable to:** 4 credits.

**DANC119 Introduction to American Social Dance (2 Credits)**
Social dance forms of North America.
**Repeatable to:** 4 credits.

**DANC128 Fundamentals of Ballet (2 Credits)**
Introduction to ballet technique and terminology for the beginning student.
**Restriction:** Must not be in Dance program.
**Repeatable to:** 4 credits.

**DANC138 Global Dance Forms (2 Credits)**
Movement course. Traditional dances and music of selected cultures.
**Repeatable to:** 6 credits if content differs.

**DANC148 Fundamentals of Modern Dance (2 Credits)**
Introduction to modern dance with emphasis on the development of fundamental movement skills.
**Restriction:** Must not be in Dance program.
**Repeatable to:** 4 credits.

**DANC149 Fundamentals of Modern Dance II (2 Credits)**
Continuation of the development of axial and locomotor movement skills with emphasis on the development of functional alignment, musicality, range of movement, coordination, and movement memory.
**Prerequisite:** DANC148.
**Repeatable to:** 4 credits.

**DANC158 Fundamentals of Jazz (2 Credits)**
Introduction to the jazz style in dance for the beginning student.
**Restriction:** Must not be in Dance program.
**Repeatable to:** 4 credits.

**DANC179 Movement Integration (2 Credits)**
Conditioning and re-patterning techniques for achieving integrated movement.
**Restriction:** Permission of ARHU-Dance department.
**Repeatable to:** 4 credits if content differs.

**DANC199 Practicum in Choreography, Production and Performance I (1-3 Credits)**
Choreography, production, and performance of student works, both on and off campus.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits.

**DANC200 Introduction to Dance (3 Credits)**
A study of dance as a form of communication and as an art form; a survey of the theories and styles of dance, and their relationships to other art forms.

**DANC207 Choreography II: The Creative Process (3 Credits)**
Explorations in movement, music, words, objects, and environments through improvisation and choreographic problem solving.
**Prerequisite:** DANC109.
**Restriction:** Permission of ARHU-Dance department.

**DANC208 Choreography I (3 Credits)**
Basic principles of dance composition: space, time, dynamics, and movement invention. The development of critical awareness.
**Prerequisite:** DANC109 and DANC102.
**Repeatable to:** 6 credits.

**DANC209 Dance Composition (3 Credits)**
Exploration of the structural elements of dance composition.
**Prerequisite:** DANC207.
**Restriction:** Permission of ARHU-Dance department.
**Repeatable to:** 6 credits if content differs.

**DANC218 Modern Dance I (3 Credits)**
Development of heightened body awareness, breath support, dynamic alignment, and spatial awareness. Focus on rhythmic clarity and musicality.
**Restriction:** Permission of ARHU-Dance department.
**Repeatable to:** 6 credits if content differs.

**DANC219 Modern Dance II (3 Credits)**
Continuation of the elements addressed in DANC218 with an added focus on momentum, the use of counter-tension, stability/mobility, suspension, and dynamic range.
**Prerequisite:** DANC218.
**Restriction:** Permission of ARHU-Dance department.
**Repeatable to:** 6 credits if content differs.

**DANC228 Ballet I (2 Credits)**
Barre and center work for alignment, strength, flexibility and coordination. Introduction to ballet terminology.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 4 credits.

**DANC229 Ballet II (2 Credits)**
Continuation of DANC228.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 4 credits.

**DANC248 Modern Dance I (3 Credits)**
Body alignment, rhythm, dynamics, space and dance phrases.
**Restriction:** Must be in Dance program; or permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits.

**DANC249 Modern Dance II (3 Credits)**
Continuation of DANC248.
**Prerequisite:** DANC248; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits.

**DANC258 Jazz I (2 Credits)**
Jazz warm-ups and combinations emphasizing rhythm and movement isolations.
**Prerequisite:** DANC158.
**Restriction:** Must be in Dance program.
**Repeatable to:** 4 credits.

**DANC259 Jazz II (2 Credits)**
Continuation of the principles of Jazz I. Emphasis on style and execution of movement.
**Prerequisite:** DANC258.
**Repeatable to:** 4 credits.

**DANC269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**DANC299 Practicum in Choreography, Production and Performance II (1-3 Credits)**
Continuation of DANC199.
**Prerequisite:** DANC199; or permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits.

**DANC304 Dance Education I: Foundations (3 Credits)**
Organization and content of the studio dance class. Structuring developmentally appropriate dance experiences for students ages 3-18.
**Restriction:** Permission of ARHU-Dance department.

**DANC308 Choreography II (3 Credits)**
Exploration of the formal elements of choreography; theme, development, repetition, contrast, transition, continuity and structure.
**Prerequisite:** DANC208.
**Repeatable to:** 6 credits.

**DANC309 Choreography III: Dance Composition (3 Credits)**
Exploration of the structural elements of dance composition.
**Prerequisite:** DANC207.
**Restriction:** Permission of ARHU-Dance department.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** DANC209 or DANC309.
**Formerly:** DANC209.

**DANC318 Modern Dance III (3 Credits)**
Continuation of the elements addressed in DANC219 with an added focus on off-verticality, spirals, complex level changes, more complex and extended phrasing, responsiveness to accompaniment, vocalization.
**Prerequisite:** DANC219.
**Restriction:** Permission of ARHU-Dance department.
**Repeatable to:** 6 credits if content differs.

**DANC319 Modern Dance IV (3 Credits)**
Continuation of the elements addressed in DANC318 with an added focus on movement subtlety and complexity, and stylistic demands.
**Prerequisite:** DANC318.
**Restriction:** Permission of ARHU-Dance department.
**Repeatable to:** 6 credits if content differs.

**DANC328 Ballet III (2 Credits)**
Execution of the vocabulary of ballet movement with technical accuracy.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 4 credits.

**DANC329 Ballet IV (2 Credits)**
Continuation of DANC328.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 4 credits.

**DANC330 Hip Hop History & Culture (3 Credits)**
Places the rich movement history of hip hop in a larger cultural context. Students will be exposed to the elements of hip hop culture, including graffiti, emceeing and deejaying, in relationship to various urban dance forms influenced by the hip hop movement. Additionally, students will explore hip hop's international presence, theorize its future and create self-choreographed routines.

**DANC338 Dance Techniques (2 Credits)**
Intermediate/Advanced level physical practice that sources a range of dance practices relevant to the current dance field in order to expose students to a plurality of techniques as a form of inclusive investigation.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits if content differs.

**DANC348 Modern Dance III (3 Credits)**
The body as an instrument of expression; techniques for increasing kinesthetic sensitivity.
**Prerequisite:** DANC249; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits.

**DANC349 Modern Dance IV (3 Credits)**
Continuation of DANC348.
**Prerequisite:** DANC348; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits.

**DANC369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**DANC371 Somatics (3 Credits)**
Current ideas and trends in dance technique, with a focus on the incorporation of dance science and somatics into dance training.
**Prerequisite:** DANC179.
**Restriction:** Permission of ARHU-Dance department.

**DANC379 Practicum in Dance (1-3 Credits)**
Performing experience for the student dancer who has developed a professional level of competence.
**Repeatable to:** 12 credits.

**DANC383 Dance History & Theory (3 Credits)**
With a primary focus on Western concert dance from the 20th and 21st centuries, this course proposes an understanding of dance as it is situated in historical and cultural contexts. Rather than proposing a canon of "masterworks", this course interrogates choreography and other dance practices from multiple perspectives such as feminist theories, race, gender, and sexuality studies.
**Restriction:** Permission of ARHU-Dance department.
**Credit Only Granted for:** DANC283 or DANC383.
**Formerly:** DANC283.

**DANC386 Experiential Learning (3-6 Credits)**
**Restriction:** Junior standing or higher; and permission of ARHU-School of Theatre, Dance & Performance Studies department.

**DANC398 Directed Studies in Dance (1-6 Credits)**
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits.

**DANC399 Practicum in Choreography, Production and Performance III (1-3 Credits)**
Continuation of DANC299.
**Prerequisite:** DANC299; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits.

**DANC405 Dance Education II: Education & Policy (3 Credits)**
Curricula in dance in K-12 settings, classroom management, assessment/grading, and best practices in dance education in public schools. Current research and policy issues are included. This course counts towards teacher certification in the State of Maryland.
**Restriction:** Permission of ARHU-Dance department.

**DANC409 Contact Improvisation (2 Credits)**
Discovery and cultivation of the principles and skills of Contact Improvisation dance technique.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 4 credits.
**Credit Only Granted for:** DANC489C or DANC409.

**DANC410 Technical Theater Production for Dance (3 Credits)**
A study of the theoretical principles of production and the practical application of those principles to the presentation of dance works.
**Prerequisite:** DANC210; or students who have taken courses with comparable content may contact the department; or permission of ARHU-School of Theatre, Dance & Performance Studies department.

**DANC418 Contemporary Modern (2 Credits)**
Physical practice that sources postmodern dance influences, endurance training, improvisation, and choreographic composition to present movement practices as a form of investigation.
**Prerequisite:** DANC218; or permission of instructor.
**Repeatable to:** 6 credits.
**Credit Only Granted for:** DANC418 or DANC489O.
**Formerly:** DANC489O.

**DANC420 Partnering (2 Credits)**
Elements of contemporary partnering including weight sharing, counter balancing, momentum/leverage, lifting and moving responsively.
**Restriction:** Permission of ARHU-Dance department.

**DANC429 Advanced Ballet Technique II (1 Credit)**
Intensive work in ballet technique for the professionally-oriented dancer.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 3 credits.

**DANC448 Modern Dance V (3 Credits)**
Complex phrases of modern dance movement with emphasis on articulation and expression.
**Prerequisite:** DANC349; and must audition.
**Repeatable to:** 6 credits.

**DANC449 Modern Dance VI (3 Credits)**
Continuation of DANC448.
**Prerequisite:** DANC448; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits.

**DANC466 Laban Movement Analysis (3 Credits)**
Introduction to Rudolf Laban's system of qualitative movement analysis in relation to understanding personal movement style. Application to dance performance, teaching, composition and research.

**DANC468 Dance Repertory (3 Credits)**
Form, content, music, design and performance of modern dance works.
**Prerequisite:** DANC349; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits if content differs.

**DANC469 Study Abroad Special Topics IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**DANC479 Advanced Practicum in Dance (1-3 Credits)**
Advanced level performing experience for the student dancer who has developed an advanced professional level of competence.
**Repeatable to:** 6 credits.

**DANC485 Seminar in Dance (3 Credits)**
Individual research leading to a presentation with written documentation of the process, serving as a culmination of undergraduate study for dance majors.
**Prerequisite:** DANC483.
**Restriction:** Must be in Dance program; and senior standing.

**DANC488 Project-Based Learning (3 Credits)**
A specific project, is addressed, in dance from the perspectives of the investigator, the creator/choreographer, and the performer. Projects are cross-disciplinary and/or cross-cultural, and may involve both on- and off-campus experiences.
**Restriction:** Permission of ARHU-Dance department.
**Repeatable to:** 6 credits if content differs.

**DANC489 Special Topics in Dance (1-3 Credits)**
Theoretical, choreographic, pedagogic, or performance study.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits if content differs.

**DANC499 Practicum in Choreography, Production and Performance IV (1-6 Credits)**
Advanced workshop in dance presentation, including performing, production and planned field experiences.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits.

# DATA - Data Science and Analytics

**DATA100 Elementary Statistics and Probability (3 Credits)**
Simplest tests of statistical hypotheses; applications to before-and-after and matched pair studies. Events, probability, combinations, independence. Binomial probabilities, confidence limits. Random variables, expected values, median, variance. Tests based on ranks. Law of large numbers, normal approximation. Estimates of mean and variance.
**Prerequisite:** MATH110, MATH112, MATH113, or MATH115; or permission of CMNS-Mathematics department; or must have math eligibility of STAT100 or higher and math eligibility is based on the Math Placement Exam or the successful completion of Math 003 with appropriate eligibility.
**Cross-listed with:** STAT100.
**Restriction:** Must not have completed MATH111; or must not have completed any STAT course with a prerequisite of MATH141.
**Credit Only Granted for:** DATA100 or STAT100.

**DATA110 Applications of R for Data Science (1 Credit)**
Intended to prepare students for subsequent courses requiring computation with R, providing powerful and easy to use tools for statistical data analysis. Covers basics of R and R Studio including file handling, data simulation, graphical displays, vector and function operations, probability distributions, and inferential techniques for data analysis.
**Prerequisite:** DATA100, STAT100, or MATH135; or any 400-level STAT course.
**Cross-listed with:** STAT110.
**Credit Only Granted for:** STAT110 or DATA110.

**DATA120 Python Programming for Data Science (1 Credit)**
An introduction to programming in Python language, using Jupyter Notebooks and Python scripts. Covers variables, conditionals, loops, functions, lists, strings, tuples, sets, dictionaries, files and visualization.
**Prerequisite:** STAT100, MATH135, or any 400-level STAT course.

**DATA400 Applied Probability and Statistics I (3 Credits)**
Random variables, standard distributions, moments, law of large numbers and central limit theorem. Sampling methods, estimation of parameters, testing of hypotheses.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH131, MATH141); or students who have taken courses with comparable content may contact the department.
**Cross-listed with:** STAT400.
**Credit Only Granted for:** DATA400, ENEE324, or STAT400.
**Additional Information:** Not acceptable toward graduate degrees in MATH/STAT/AMSC.

# EALL - East Asian Languages and Literatures

**EALL269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**EALL300 The Languages of East Asia (3 Credits)**
A survey of Chinese, Japanese, and Korean, and the languages of other East Asian nationalities. Provides a basic understanding of the structures of these languages. Topics covered include the characterizing features; the relationships of the languages to each other; the geographical, social, and historical settings. No knowledge of Asian languages is required. Taught in English.

**EALL369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

# ECON - Economics

**ECON111 Thinking Like an Economist (3 Credits)**
An introduction to the modes of thought of economics. Use of simple standard tools of economics to analyze important problems that arise frequently in public policy, the news media, and in daily life. An emphasis on how economists predict what choices societies make and how economists analyze whether those are good choices. Practical application of a variety of economic tools leading to a focus on the essential unity underlying these analytical tools, viewing economics as a discipline that applies a core methodology in different ways in different situations.
**Restriction:** Must be sophomore standing or lower.

**ECON155 Economics & the College Affordability Crisis (3 Credits)**
Why have tuition and fees increased substantially over the past 30 years at almost all institutions of higher education in the US? How can quality and productivity be measured in schools? Why do most students pay considerably less than the actual cost of service provision? What is society's interest in devoting considerable resources to education beyond the high school level? How do existing and proposed governmental policies impact both the number of students pursuing a college education and the cost of this education? ECON155 uses tools from economics to examine and explore answers to these and other related questions.
**Additional Information:** No background in economics is required, although this course could be a nice complement for ECON200 and ECON201.

**ECON175 Inequality: Determinants and Policy Remedies (3 Credits)**
History shows that the gap between the rich and the poor has varied over time within and between countries, most recently seeming to increase within many countries while somewhat decreasing between countries. This course challenges students to investigate why people make different amounts of money, why income inequality has changed dramatically in recent years, what public policy tools exist to counter inequality increases, and what different institutional arrangements different countries use to lower inequality. This course will introduce students to theoretical tools used by economists to understand the sources of inequality and will also examine various empirical measures of inequality.

**ECON181 Putting a Price on the Environment: An Economist's Perspective on Sustainability (3 Credits)**
How does society balance the benefits of environmental protection and preservation against the costs? Though some might say that the environment is priceless, economists recognize that every action involves trade-offs. This course investigates sustainability through comparing costs and benefits. From this perspective, other questions arise: How can we design policies that incentivize sustainable choices? Why might usual market functioning fail to achieve sustainability? Do we need to put a price on the environment in order to protect it? How do we measure an economy's "success"? This course explores the answers to these and other related questions from an economist's perspective.

**ECON185 Energy: Crisis or Breakthrough? (3 Credits)**
Will we face an energy crisis in the near future, or will technological breakthroughs solve problems? Will we destroy the environment by careless use of polluting energy, or we will find new and clean sources of energy that resolves the environmental issue once and for all? Will politicians and governments succeed in agreeing on a coherent strategy to deal with global issues related to energy, or do we expect individual countries to move in different directions and exacerbate the problems? Students will explore the demand and supply sides of the energy market and their relationships with government policies and environmental concerns. Students will also analyze empirical evidence to better understand the factors affecting energy production and consumption in the past and possible directions in the future. By examining past situations when technological change mitigated problems in energy markets, we can make informed predictions about what could happen next.

**ECON200 Principles of Microeconomics (3 Credits)**
Introduces economic models used to analyze economic behavior by individuals and firms and consequent market outcomes. Applies conceptual analysis to several policy issues and surveys a variety of specific topics within the broad scope of microeconomics.
**Prerequisite:** MATH107 or MATH110; or must have math eligibility of MATH113 or higher.
**Credit Only Granted for:** ECON200, AREC240, or AREC250.
**Additional Information:** It is recommended that students complete ECON200 before taking ECON201.

**ECON201 Principles of Macroeconomics (3 Credits)**
An introduction to how market economies behave at the aggregate level. The determination of national income/output and the problems of unemployment inflation, will be examined, along with monetary and fiscal policy.
**Prerequisite:** MATH107 or MATH110; or must have math eligibility of MATH113 or higher.
**Recommended:** ECON200.
**Credit Only Granted for:** ECON201 or ECON205.

**ECON230 Applied Economic Statistics (3 Credits)**
Introductory course to develop understanding of statistical concepts used in applied economics. Students will acquire skills needed to calculate and interpret statistical concepts, including descriptive statistics, probability, discrete and continuous distributions, sampling, point and interval estimations, hypothesis testing, basic analysis of variance, and simple linear regression models. Students will apply these concepts to data using both handheld calculators and spreadsheets(Excel), and students will be introduced to an econometric software package such as SPSS or SAS or R.
**Prerequisite:** Must have math eligibility of MATH113 or higher; or 1 course with a minimum grade of C- from (MATH107, MATH110); and minimum grade of C- in ECON200 and ECON201.
**Recommended:** Students should already have basic familiarity with Microsoft Excel or similar spreadsheet software.
**Restriction:** Must be in Economics Bachelor of Arts program.

**ECON258 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ECON300 Methods and Tools for Economic Analysis (3 Credits)**
Economic application of mathematical tools and concepts necessary for intermediate and advanced coursework in economics. Topics include: multivariable calculus, constrained optimization, foundational coverage of probability theory, and exponential/logarithmic functions.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON200, ECON201); and minimum grade of C- in MATH140.
**Restriction:** Must be in Economics Bachelor of Science program; and must not have completed MATH241.

**ECON305 Intermediate Macroeconomic Theory and Policy (4 Credits)**
Analysis of the determination of national income, employment, and price levels. Discussion of consumption, investment, inflation, and government fiscal and monetary policy.
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201; and 1 course with a minimum grade of C- from (MATH120, MATH130, MATH136, MATH140).
**Credit Only Granted for:** ECON305 or ECON325.

**ECON306 Intermediate Microeconomic Theory & Policy (4 Credits)**
Analysis of the theories of consumer behavior, producer behavior, different market structures, and various sources of inefficient outcomes. Analysis of microeconomic policies designed to improve market outcomes.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON200, AREC250); and minimum grade of C- in ECON201; and 1 course with a minimum grade of C- from (MATH120, MATH130, MATH136, MATH140).
**Credit Only Granted for:** ECON306, ECON326, AREC489M, or AREC326.

**ECON310 European Economic History (3 Credits)**
The evolution of the capitalist system from its medieval origins to the present. Emphasis on dynamic forces of cumulative change in capitalism, including capital accumulation, technology, expansion of markets, the corporate form of private property in the means of production, and the relation of capitalism to war and revolution.
**Prerequisite:** ECON201 and ECON200.

**ECON311 American Economic History Before the Civil War (3 Credits)**
Economic concepts are used to analyze various aspects of the founding and early history of the U.S., including the British settlement of the North American colonies, the economics of the American Revolutionary war, the writing of the Constitution, the development of financial markets, policies on public lands and the spread of western agriculture, slavery, banking, and early industrialization.
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201.
**Restriction:** Must be in Economics Bachelor of Arts program.

**ECON312 American Economic History After the Civil War (3 Credits)**
Topics include: the economics of the Civil War, the performance of southern agriculture in the late 19th century, the rise of large corporations, industrialization, the development of financial markets, the creation of the Federal Reserve Board, the economics of the Great Depression and the New Deal, the economic impact of World War II, and the rise of the modern service economy in the late 20th century. Utilizes basic economic theories to understand these episodes as well as the progress of the U.S. economy over this period.
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201.
**Restriction:** Must be in Economics Bachelor of Arts program.

**ECON314 Economic History, Development and Policy (3 Credits)**
Study abroad in the economic history, institutional development, and recent economic policy problems of selected areas.
**Prerequisite:** ECON200 and ECON201.

**ECON315 Economic Development of Underdeveloped Areas (3 Credits)**
Analysis of the economic and social characteristics of underdeveloped areas. Recent theories of economic development, obstacles to development, policies and planning for development.
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201.
**Credit Only Granted for:** ECON315 or ECON416.

**ECON317 Global Economic Policies (3 Credits)**
Analysis of policy options and debates on fostering economic growth and development in a global economy where national boundaries are no longer relevant. Topics covered will include real loanable funds markets in both local and international contexts during normal conditions and during financial crises, the design of trade and industrial policies, and the role of the World Bank, IMF, WTO, and other international agencies as well as regional and bilateral trade agreements. Emerging economies will be emphasized.
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201.
**Restriction:** Must be in Economics Bachelor of Arts program.

**ECON321 Economic Statistics (3 Credits)**
Introduction to the use of statistics in economics. Topics include: Probability, random variables and their distributions, sampling theory, estimation, hypothesis testing, analysis of variance, regression analysis and correlation.
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201; and minimum grade of C- in ECON300 or (MATH241 and any statistics course).
**Restriction:** Must be in Economics Bachelor of Science program.

**ECON325 Intermediate Macroeconomic Analysis (4 Credits)**
Analysis of macroeconomic behavior and policy with emphasis on theoretical rigor. Topics include the determinants of economic growth, unemployment, inflation, and international economic flows.
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201; and minimum grade of C- in ECON300 or (MATH241 and any statistics course).
**Restriction:** Must be in Economics Bachelor of Science program.
**Credit Only Granted for:** ECON305 or ECON325.

**ECON326 Intermediate Microeconomic Analysis (4 Credits)**
Analysis of economic decision-making by individuals and firms, the resulting market outcomes, and applications to real-world problems. Emphasis on analytical logic and theoretical rigor. Topics covered include consumer preferences and utility maximization, perfect competition and market power, uncertainty and risk, externalities, and asymmetric information.
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201; and minimum grade of C- in ECON300 or (MATH241 and any statistics course).
**Restriction:** Must be in Economics Bachelor of Science program.
**Credit Only Granted for:** ECON306, ECON326, or AREC326.

**ECON327 Behavioral Economics (3 Credits)**
Integrating the insights of psychology into economics. Analysis of the ways in which individuals make decisions that systematically depart from the so-called "standard model" of homo economicus, which assumes perfect rationality, perfect selfishness, and perfect willpower. Investigating the implications of the major findings of behavioral economics for policymakers.
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201.
**Restriction:** Must be in Economics Bachelor of Arts program.

**ECON330 Money and Banking (3 Credits)**
The structure of financial institutions and their role in the provision of money and near money. Analysis of the Federal Reserve System, the techniques of central banks, and the control of supply of financial assets in stabilization policy. Relationship of money and credit to economic activity and the price level.
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201.

**ECON340 International Economics (3 Credits)**
Introduces economic models of international trade and finance. Analyzes policies designed to promote and restrict international trade and to manage exchange rates and impact international capital flows.
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201.
**Credit Only Granted for:** ECON340 or ECON441.

**ECON354 Using Big Data to Solve Economic and Social Problems (4 Credits)**
Shows how "big data" can be used to understand and address some of the most important social and economic problems of our time. The course will give students an introduction to frontier research and policy applications in economics and social science in a less-technical manner. Topics include equality of opportunity, education, racial disparities, innovation and entrepreneurship, health care, climate change, criminal justice, and tax policy. In the context of these topics, the course will also provide an introduction to basic methods in data science, including regression, causal inference, and machine learning.
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201; and 1 course with a minimum grade of C- from (STAT100, ECON230, BMGT230, ECON321, STAT400, or other equivalent course).
**Restriction:** Must be in one of the following programs (Economics Bachelor of Arts; Economics Bachelor of Science).

**ECON358 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Prerequisite:** At least one principles level course.
**Repeatable to:** 15 credits if content differs.

**ECON371 Economic Analysis of Good, Evil, and Fairness (3 Credits)**
Examines how economic tools can be used to analyze and better understand issues of "Good", "Evil" and "Fairness". Considers questions such as: What is the relation between fairness and equal treatment? Between fairness and equality? What makes an economic or political system "fair" or "unfair"? What makes a system "good"?
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201.
**Restriction:** Must be in Economics Bachelor of Arts program.

**ECON375 Economics of Poverty and Discrimination (3 Credits)**
Examination of various issues, including: the causes of persistent poverty over time for some groups within society; the relationship of poverty to technological change, to economic growth, and to education and training; economic results of discrimination; proposed remedies for poverty and discrimination.
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201.

**ECON386 Experiential Learning (3 Credits)**
See Department Advising Office for course eligibility, course requirements, and application information.
**Prerequisite:** ECON201 and ECON200.
**Restriction:** Permission of BSOS-Economics department; and must be in a major within the BSOS-Economics department; and minimum cumulative GPA of 2.5; and junior standing or higher.

**ECON387 Career Preparation for Economics Majors (2 Credits)**
Increase student knowledge of career paths, job search tools, and strategies for successfully obtaining a job with a BA or BS in economics. Students will engage in a range of different activities which build their understanding of job opportunities in economics and hone their abilities to find positions they want. Students will reflect on specific skills employers seek from economics graduates and incorporate that knowledge in their own individual job search and career plan.
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201.
**Restriction:** Must be in one of the following programs (Economics Bachelor of Arts; Economics Bachelor of Science) ; and must have earned a minimum of 30 credits.

**ECON396 Independent Honors Study (3 Credits)**
First semester of the departmental honors sequence. Students will develop and apply research skills required to carry out original research. By the end of the semester students will have produced a complete draft of an honors thesis resembling a scholarly journal article.
**Restriction:** Permission of BSOS-Economics department.

**ECON397 Honors Thesis (3 Credits)**
General supervision will be provided through assembled meetings with the professor in charge of the course.
**Prerequisite:** ECON396.
**Restriction:** Must be a candidate for honors in economics.

**ECON398 Topics in Economics (3 Credits)**
This course is designed to meet the changing interests of students and staff. Topics vary in response to those interests. Students are advised to seek information about the coverage and prerequisites during the registration period.
**Prerequisite:** ECON201 and ECON200.
**Restriction:** Permission of BSOS-Economics department.
**Repeatable to:** 6 credits if content differs.

**ECON399 Independent Study in Economics (1-3 Credits)**
Integrated readings and independent study under direction and supervision of a faculty member. Contact department for additional information.
**Prerequisite:** Minimum grade of C- in ECON200 and ECON201.
**Restriction:** Permission of BSOS-Economics department.
**Repeatable to:** 6 credits if content differs.

**ECON401 Current Issues in American Economic Policy (3 Credits)**
Analysis of current economic problems and public policies. Topics could include poverty, income inequality, social insurance, education, environmental sustainability, immigration, and innovation. Other issues may be substituted depending on current events.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON305, ECON325); and 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON424, ECON422, ECON426).
**Restriction:** Permission of BSOS-Economics department; Must be in Economics Bachelor of Arts program.

**ECON402 Macroeconomic Models and Forecasting (3 Credits)**
Analysis of the fluctuations in economic activity and the formulation and use of forecasting models of the economy. Illustrations of computer macro models and forecasting problems.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON305, ECON325); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321).
**Restriction:** Must be in Economics Bachelor of Arts program.

**ECON406 Advanced Microeconomics (3 Credits)**
Expands on the assumptions of rational decision-making used in intermediate microeconomics and develops more complicated, more realistic models which address uncertainty, intertemporal choices, strategic interactions, social preferences and considerations of what is fair.
**Prerequisite:** Minimum grade of C- in ECON326; and 1 course with a minimum grade of C- from (ECON321, STAT401).
**Restriction:** Must be in Economics Bachelor of Science program.

**ECON407 Advanced Macroeconomics (3 Credits)**
An in-depth analysis of current issues in macroeconomic theory and policy. Topics covered include: 1. alternative perspectives on macroeconomics including monetarism, new classical equilibrium models, rational expectations, and real business cycle models; 2. long term growth, the slowdown in productivity growth, and concerns about U.S. competitiveness; 3. the effectiveness of macroeconomic policy in an open economy; 4. the effects of finance on the real sector.
**Prerequisite:** Minimum grade of C- in ECON325; and 1 course with a minimum grade of C- from (ECON321, STAT401).
**Restriction:** Must be in Economics Bachelor of Science program.

**ECON410 Comparative Economic Institutions (3 Credits)**
Institutions are the sets of rules that constrain the decisions and interactions of economic agents. The course uses economic analysis to understand both formal institutions (e.g. laws) and informal institutions (e.g. cultural norms). Practical examples are drawn from economics, law, and politics, and reflect the experience of many different countries.
**Prerequisite:** Minimum grade of C- in ECON325 and ECON326; and 1 course with a minimum grade of C- from (ECON321, STAT401).
**Restriction:** Must be in Economics Bachelor of Science program.

**ECON412 Economic History and Modern Development (3 Credits)**
Analysis of major economic, political, and social change in the developed world since 1800. This includes factors contributing to increases in economic performance, changes in the form of government, technological change (including industrialization), and integration and disintegration of the global economy. Emphasis is on institutional changes in how societies organize economic and political activities.
**Prerequisite:** Minimum grade of C- in ECON325 and ECON326.
**Restriction:** Must be in Economics Bachelor of Science program.

**ECON414 Game Theory (3 Credits)**
Studies the competitive and cooperative behavior that results when several parties find that their individual outcomes are jointly determined. Students will learn how to use game theory to analyze situations of potential conflict. Applications are drawn from economics, business, and political science.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321, STAT400).
**Restriction:** Must be in one of the following programs (Economics Bachelor of Arts; Economics Bachelor of Science).
**Credit Only Granted for:** CMSC474, ECON414, GVPT399A or GVPT390.

**ECON415 Market Design (3 Credits)**
Focuses on recent developments in the design of markets to improve economic performance and to open new economic opportunities. It is divided into three main segments -- auction design, the design of matching mechanisms, and antitrust theory and policy.
**Prerequisite:** Minimum grade of C- in ECON414.
**Restriction:** Must be in Economics Bachelor of Science program.

**ECON416 Analysis of Economic Development (3 Credits)**
Analysis of the determinants and influences on economic development. Emphasis on both theoretical models and econometric methods of explaining why some countries are poor, along with examination of policies to promote development.
**Prerequisite:** Minimum grade of C- in ECON325, ECON326, and ECON422.
**Restriction:** Must be in Economics Bachelor of Science program.
**Credit Only Granted for:** ECON315 or ECON416.

**ECON417 Estimating Policy and Program Impact (3 Credits)**
Governments, businesses, non-profits, funders, and other organizations must allocate scarce resources between competing uses. Understanding the causal effect of policies, programs or investments on key outcomes can guide the choices of these decision-makers. Correlations between policies and outcomes or changes in outcomes after new policies are adopted are rarely sufficient for estimating the causal effect, however. This course focuses on econometric strategies for obtaining unbiased causal estimates, including experimental methods, instrumental variables, regression discontinuity, and differences-in-differences. There will be an emphasis on using Stata and on interpreting the results of econometric analysis
**Prerequisite:** 1 course with a minimum grade of C- from (ECON306, ECON326) and 1 course with a minimum grade of C- from (ECON424, ECON422).
**Restriction:** Permission of BSOS-Economics department; Must be in one of the following programs (Economics Bachelor of Arts; Economics Bachelor of Science).

**ECON418 Economic Development of Selected Areas (3 Credits)**
Economic and institutional characteristics of a specific geographic area are identified and discussed, and alternate strategies and policies for development are analyzed.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON305, ECON306, ECON325, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321).
**Restriction:** Must be in Economics Bachelor of Arts program.
**Repeatable to:** 6 credits if content differs.

**ECON422 Econometrics (3 Credits)**
Emphasizes the interaction between economic problems and the assumptions employed in statistical theory. Formulation, estimation, and testing of economic models, including single variable and multiple variable regression techniques, theory of identification, and issues relating to inference.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON325, ECON326); and 1 course with a minimum grade of C- from (ECON321, STAT401).
**Restriction:** Must be in Economics Bachelor of Science program.
**Credit Only Granted for:** ECON422, ECON424, or AREC422.

**ECON423 Advanced Topics in Econometrics (3 Credits)**
Interaction between economic problems and specification and estimation of econometric models. Topics may include: autocorrelation, heteroscedasticity, functional form, simultaneous equation models, logit and probit models, instrumental variables, qualitative choice models, and other computational methods.
**Prerequisite:** Minimum grade of C- in ECON422.
**Restriction:** Must be in Economics Bachelor of Science program.

**ECON424 Applied Econometrics (3 Credits)**
Provide the knowledge and skills necessary to accomplish and utilize basic applied econometric analysis utilized by many business service providers, government agencies, and nonprofits engaged in policy analysis. Topics include simple and multiple regressions using cross section, time series, and panel data, issues of heteroskedasticity, serial correlation, and multicollinearity, models with binary dependent variable, and program evaluation. Course emphasizes application of knowledge using software packages but still covers essential theoretical background.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON305, ECON306, ECON325, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321).
**Restriction:** Must be in Economics Bachelor of Arts program.
**Credit Only Granted for:** ECON422, ECON424 or AREC422.

**ECON425 Mathematical Economics (3 Credits)**
Covers mathematical tools and skills utilized in upper undergraduate and master's level coursework in Economics and Public Policy. Reviews calculus and math of finance and growth. Introduces techniques of optimization, linear algebra, and differential equations and connects them to micro and macro theory and applications. Topics will also include coverage of probability theory to explore how economists model uncertainty, as well as economic applications of integration.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON305, ECON325); and 1 course with a minimum grade of C- from (ECON306, ECON326).
**Restriction:** Must be in Economics Bachelor of Arts program.

**ECON426 Economics of Cost-Benefit Analysis (3 Credits)**
Study of how to use cost benefit analysis and other similar tools of applied microeconomics to conduct policy analyses. Cost-benefit analysis is an empirical method of identifying an optimal choice from a set of policy alternatives, where optimal is defined in terms of economic efficiency. Real world examples are addressed, so that students understand limitations of the methods and also interactions of economic analysis with political and administrative processes.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON305, ECON306, ECON325, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321).
**Restriction:** Must be in Economics Bachelor of Arts program.

**ECON427 Experimental Economics (3 Credits)**
An introduction to the methodology of experimental economics and its application to issues such as decision-making under uncertainty, auctions, and public goods. Also an introduction to behavioral economics as a relatively new area of economic research.
**Prerequisite:** Minimum grade of C- in ECON326; and 1 course with a minimum grade of C- from (ECON321, STAT401).
**Restriction:** Must be in Economics Bachelor of Science program.

**ECON432 Applied Machine Learning (4 Credits)**
Offers a comprehensive examination of the concepts and techniques used in machine learning, with a specific emphasis on their applications in economics. Focuses on the practical aspects of machine learning, including the use of different methods, model selection, and performance evaluation. Students will explore both supervised and unsupervised learning techniques, such as linear and non-linear regression, k-nearest neighbors, tree-based approaches, support vector machines, neural networks, and dimensionality reduction methods. Additional advanced methods may be covered, depending on the time available. Hands-on implementation of these techniques will be conducted using the R programming language.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON422, ECON424).
**Restriction:** Permission of BSOS-Economics department; Must be in one of the following programs (Economics Bachelor of Arts; Economics Bachelor of Science).

**ECON433 Economics of Big Data (4 Credits)**
The importance of big data in the global economy is rising. Students will explore the definition and characteristics of big data, the impact of big data on individuals, use of big data by firms, entrepreneurs and non-profits, as well as how big data reshapes various public policies.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321, STAT401).
**Restriction:** Must be in one of the following programs (Economics Bachelor of Arts; Economics Bachelor of Science).

**ECON434 The Economics of Information and Uncertainty (3 Credits)**
How do rational agents make decisions when faced with uncertainty? How do markets and other institutions deal with risks? How do markets behave when some actors are better informed than others? What incentives influence whether economic decision-makers hide or reveal information? Topics include the value of information, the purchase of warranties, agency problems in management, adverse selection and moral hazard in insurance, and signaling in education.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321, STAT400).
**Restriction:** Must be in one of the following programs (Economics Bachelor of Arts; Economics Bachelor of Science).
**Credit Only Granted for:** ECON498U or ECON434.
**Formerly:** ECON498U.

**ECON435 Financial Markets and the Macroeconomy (3 Credits)**
The different types of financial assets that exist, the markets that they trade in, and the determination of their prices and rates of return are examined. Specific topics that will be covered include the Markowitz portfolio selection model, the capital asset pricing model, the arbitrage pricing theory, the efficient markets hypothesis, the term structure of interest rates, and options. There will be almost no emphasis on issues in corporate finance.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON305, ECON325); and 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, STAT400, ECON321).
**Restriction:** Must be in one of the following programs (Economics Bachelor of Arts; Economics Bachelor of Science).
**Credit Only Granted for:** BMGT343 or ECON435.
**Additional Information:** Finance majors will not receive credit for ECON435.

**ECON436 Financial Econometrics (3 Credits)**
An introduction to financial econometrics, which is data science applied to understanding the financial system. Students will learn modern techniques in financial econometrics with an emphasis on the interaction between modeling (theory) and empirical analysis. Topics include relevant economic theory, optimization techniques, probability models, statistical analysis, and use of statistical software.
**Prerequisite:** Minimum grade of C- in ECON325 and ECON422.
**Restriction:** Must be in Economics Bachelor of Science program.

**ECON441 Theory of International Economics (3 Credits)**
Theoretical treatment of international trade and international finance. Includes Ricardian and Heckscher-Ohlin theories of comparative advantage, analysis of tariffs and other trade barriers, international factor mobility, balance of payments adjustments, exchange rate determination, and fiscal and monetary policy in an open economy.
**Prerequisite:** Minimum grade of C- in ECON326 and ECON325.
**Restriction:** Must be in a major within the BSOS-Economics department; and must not have completed ECON340, ECON442, or ECON443.
**Credit Only Granted for:** ECON340, ECON441, ECON442, or ECON443.

**ECON442 Globalization and Capital Markets (3 Credits)**
Uses models of open-economy macroeconomics to explain the causes and consequences of international capital flows. Analysis is made of private consumption, investment, the government sector, current accounts, the labor market, and the money and foreign exchange markets in small open economies. This framework is then used to study examples of how speculative attacks on currencies, sudden reversals of capital inflows, and the effects of the lack of credibility of economic policy affect economic development.
**Prerequisite:** Minimum grade of C- in ECON326 and ECON325; and 1 course with a minimum grade of C- from (ECON321, STAT401).
**Restriction:** Must be in Economics Bachelor of Science program; and must not have completed ECON441.
**Credit Only Granted for:** ECON441 or ECON442.

**ECON443 International Trade and Trade Policy in the New Global Economy (3 Credits)**
Examines the economics of international economic integration, including the theory of customs unions and free trade areas, the role of GATT and the WTO, changes in individual countries' foreign trade policies during the new era of globalization, the special role of multinational firms in world trade, and recent controversies about the benefits and costs of globalized trade.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON305, ECON325); and 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321).
**Restriction:** Must be in Economics Bachelor of Arts program; and must not have completed ECON441.
**Credit Only Granted for:** ECON441 or ECON443.

**ECON444 Research in Globalization (3 Credits)**
As globalization continues, individual countries must confront a variety of related issues including rising inequality, decline of domestic industries, climate change, and disputes over intellectual property rights. Various economic models and research methods will be covered to develop the analytic and empirical skills needed to perform independent research in globalization. Students will prepare literature reviews, conduct preliminary empirical investigations using STATA, and produce well-designed research proposals.
**Prerequisite:** Minimum grade of C- in ECON326 and ECON422.
**Restriction:** Must be in Economics Bachelor of Science program.
**Credit Only Granted for:** ECON498G or ECON444.
**Formerly:** ECON498G.

**ECON451 Public Choice (3 Credits)**
Analysis of collective decision making, economic models of government, program budgeting, and policy implementation; emphasis on models of public choice and institutions which affect decision making.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321).
**Restriction:** Must be in Economics Bachelor of Arts program.

**ECON453 Natural Resources and Public Policy (3 Credits)**
Rational use and reuse of natural resources. Theory, methodology, and policies concerned with the allocation of natural resources among alternative uses. Optimum state of conservation, market failure, safe minimum standard, and cost-benefit analysis.
**Prerequisite:** AREC326, ECON306, or ECON326; and (BMGT230 or ECON230).
**Cross-listed with:** AREC453.
**Restriction:** Must be in one of the following programs (Agricultural and Resource Economics; Agricultural and Resource Economics: Agribusiness; Agricultural and Resource Economics: Environmental and Resource Economics; Economics Bachelor of Arts; Environmental Science & Policy-Env Economics).
**Credit Only Granted for:** AREC453 or ECON453.

**ECON454 Public Finance and Public Policy (3 Credits)**
The role of the the public sector in a market economy constitutes the over-arching topic of this course. Emphasis lies on analyzing government expenditure programs and the microeconomics of tax policy.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, STAT400, ECON321).
**Restriction:** Must be in one of the following programs (Economics Bachelor of Arts; Economics Bachelor of Science).

**ECON455 Economics of Education Policy (3 Credits)**
Examines the role that government plays in providing and financing education. Analyzes why people invest in education. Considers the effects of education on long-term social and economic outcomes, the behavior of institutions that produce education, and how to design and implement public policies affecting the level and distribution of educational resources. Uses microeconomic models and empirical findings to analyze current issues in education policy.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321).
**Restriction:** Must be in Economics Bachelor of Arts program.
**Credit Only Granted for:** ECON468E or ECON455.
**Formerly:** ECON468E.

**ECON456 Law and Economics (3 Credits)**
Relationship of the exchange process to the system of institutions and rules that society develops to carry out economic transactions. Topics covered include: Property rights; torts, negligence, and liability; contracts and exchanges; criminal control and enforcement; equity and efficiency issues .
**Prerequisite:** 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321).
**Restriction:** Must be in Economics Bachelor of Arts program.

**ECON458 Special Topics in Study Abroad IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Prerequisite:** At least one intermediate theory course and/or statistics.
**Repeatable to:** 15 credits if content differs.

**ECON460 Industrial Organization (3 Credits)**
Examines different theoretical models of firm behavior in markets with varying amounts of market power. Relates theory to specific industries and examines how market structure evolves over time.
**Prerequisite:** Minimum grade of C- in ECON326; and 1 course with a minimum grade of C- from (ECON321, STAT401).
**Restriction:** Must be in Economics Bachelor of Science program.

**ECON461 Economics of Regulation and Antitrust (3 Credits)**
Considers government intervention in economic activity of three types: antitrust policy, regulation of natural monopolies, and health safety regulation. Covers theoretical models, real-world policy applications, and empirical studies relevant to the impact of regulation.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321).
**Restriction:** Must be in Economics Bachelor of Arts program.

**ECON462 Economics of Entrepreneurship (3 Credits)**
Economic theory highlights the role of entrepreneurs in fueling economic growth and accomplishing reallocation of resources in response to changes in preferences, technology, demographics, and resource. This course uses empirical evidence to examine the extent to which these predictions are valid. To more fully understand the motivations and constraints relevant to entrepreneurs, student will write a business plan as if s/he were starting a new business.
**Prerequisite:** Minimum grade of C- in ECON422.
**Restriction:** Must be in Economics Bachelor of Science program.
**Credit Only Granted for:** ECON398O or ECON462.
**Formerly:** ECON398O.

**ECON463 Economics of Sports (3 Credits)**
The application of theoretical and empirical economic tools to the sports industry, including competition at professional,collegiate, and international levels. Microeconomic models from labor, industrial organization and public finance will be applied to the sports industry and combined with data from sports markets, providing students with opportunities to produce and interpret economic analysis. The topic of discrimination will also be explored in the context of this particular economic activity.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321, STAT400).
**Restriction:** Must be in Economics Bachelor of Arts program.

**ECON465 Health Economics (3 Credits)**
Analyze markets for health care and related products by understanding the incentives and constraints for various participants, including individuals, family units, doctors, pharmaceutical companies, hospitals, and insurance providers. Analysis will combine both theoretical models and empirical tools.
**Prerequisite:** Minimum grade of C- in ECON326; and 1 course with a minimum grade of C- from (ECON321, STAT401).
**Restriction:** Must be in Economics Bachelor of Science program.

**ECON468 Special Topics in Applied Economics (3 Credits)**
Selected topics in applied economics. Designed to meet the changing interests of students and staff.
**Prerequisite:** 1 course with a minimum grade of C- from (BMGT230, ECON230); and 1 course with a minimum grade of C- from (ECON305, ECON306).
**Restriction:** Must be in Economics Bachelor of Arts program.
**Repeatable to:** 15 credits if content differs.

**ECON470 Labor Economics: Theory and Evidence (3 Credits)**
Analysis of labor markets in theory and the real world. Topics include labor supply, labor demand, human capital, performance incentives, unemployment, discrimination, and immigration. Students will develop an understanding of how formal economic research is used to analyze U.S. labor markets and how research influences policy debates.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, STAT400, ECON321).
**Restriction:** Must be in one of the following programs (Economics Bachelor of Arts; Economics Bachelor of Science).
**Credit Only Granted for:** ECON470 or ECON471.

**ECON471 Labor Market Policies and Research (3 Credits)**
Economic analysis of labor based on modern theory and empirical analysis. Focus on public policy, studying the interactions between labor demand and labor supply in the labor market and how policies impact those interactions. Possible policies include welfare policy, minimum wage policy, immigration policy, and anti-discrimination policies. Uses statistical software to summarize and create visualizations of economic data.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON424, ECON422).
**Restriction:** Permission of BSOS-Economics department; Must be in one of the following programs (Economics Bachelor of Arts; Economics Bachelor of Science).
**Credit Only Granted for:** ECON470 or ECON471.

**ECON472 Economics of Social Safety Nets (3 Credits)**
Analysis of the economic issues associated with social safety nets. Topics to be covered include the cash transfer programs for breaking the cycle of poverty, labor market policies aimed at combating unemployment, childhood interventions to improve human capital development, and the challenges faced by pension systems over the world. The approach is based on a life-cycle perspective. Evidence and experiences from developed and developing countries will covered.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON306, ECON326); and minimum grade of C- in ECON424.
**Restriction:** Permission of BSOS-Economics department; Must be in Economics Bachelor of Arts program.

**ECON481 Environmental Economics (3 Credits)**
An exploration of the use of economic incentives for protection of the environment and the determination of appropriate (or efficient) level of environmental quality. Also covers the choice of policy instruments for the attainment of environmental standards.
**Prerequisite:** 1 course with a minimum grade of C- from (AREC326, ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, ECON321, BMGT230).
**Cross-listed with:** AREC481.
**Restriction:** Must be in one of the following programs (Agricultural and Resource Economics; Agricultural and Resource Economics: Agribusiness; Environmental Science & Policy-Env Economics; Agricultural and Resource Economics: Environmental and Resource Economics; Economics Bachelor of Arts program).
**Credit Only Granted for:** ECON481 or AREC481.

**ECON484 The Economics of Climate Change (3 Credits)**
The role of economics in the formation of climate policy; basic concepts of environmental economics including efficiency, externalities, and policy instruments; economic models of intertemporal decisions and decision making in the face of uncertainty. Applied economic analysis of specific issues and current policy initiatives.
**Prerequisite:** 1 course with a minimum grade of C- from (AREC326, ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, ECON321, BMGT230).
**Cross-listed with:** AREC454.
**Credit Only Granted for:** AREC454 or ECON484.

**ECON485 Economics of Land Use (3 Credits)**
Fundamentals of location theory. Microeconomics of land use decisions, including determination of rent and hedonic pricing models. Impacts of government decisions on land use, including regulation (e.g., zoning), incentives (transferable development rights), provision of public services, and infrastructure investments. Impacts of land use on environmental quality, including issues relating to sprawl, agricultural land preservation, and other topics of special interest.
**Prerequisite:** 1 course with a minimum grade of C- from (AREC326, ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, ECON321, BMGT230).
**Cross-listed with:** AREC455.
**Credit Only Granted for:** AREC455 or ECON485.

**ECON486 Energy and Environmental Economics (3 Credits)**
Economic theory and empirical methods are used to study problems of energy, the environment, and the economy. It examines the extraction, production, and use of energy and market institutions and regulatory approaches used to correct market failures. Topics covered include: oil and natural gas markets, management and design of electricity markets, renewable energy, non-market valuation , climate change, and transportation policies.
**Prerequisite:** 1 course with a minimum grade of C- from (AREC326, ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, ECON321, BMGT230).
**Cross-listed with:** AREC456.
**Credit Only Granted for:** AREC456 or ECON486.

**ECON488 Applied Research Practicum (1-3 Credits)**
Students gain experience applying economic knowledge and producing research valued by businesses, non-profits, and/or government agencies. Students engage in activities similar to what an intern or entry-level employee would perform. Students work in small groups to find different kinds of data and facts, analyze and interpret this information, and use research findings to develop and present recommendations for simulated clients.
**Prerequisite:** 1 course with a minimum grade of B- from (BMGT230, ECON321, ECON230); and 1 course with a minimum grade of C- from (ECON305, ECON325); and 1 course with a minimum grade of C- from (ECON306, ECON326).
**Recommended:** ECON422, ECON402, or ECON424.
**Restriction:** Permission of BSOS-Economics department.
**Repeatable to:** 6 credits if content differs.

**ECON489 Applied Economics Practicum (1-3 Credits)**
Students gain experience explaining economic knowledge to people who have not studied economics. Students engage in activities preparing them for careers in banking, business consulting, financial education, wealth management, and related services.
**Restriction:** Permission of BSOS-Economics department.
**Repeatable to:** 6 credits if content differs.

**ECON490 Urban & Regional Economics: Issues and Policies (3 Credits)**
Exploration of urban and regional economics and policies, including economic forces leading to formation of city and regional networks. Conceptual and empirical analysis of policies affecting land use, housing, transportation and other aspects of sub-national economic development.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON321, BMGT230, ECON230).
**Restriction:** Must be in Economics Bachelor of Arts program.
**Credit Only Granted for:** ECON398I or ECON490.
**Formerly:** ECON398I.

**ECON498 Special Topics in Economic Analysis (3 Credits)**
Selected topics in economic analysis. Designed to meet the changing interests of students and staff.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON321, STAT401); and 1 course with a minimum grade of C- from (ECON325, ECON326).
**Restriction:** Must be in Economics Bachelor of Science program.
**Repeatable to:** 15 credits if content differs.

**ECON499 Independent Research in Economics (1-3 Credits)**
Directed research under the supervision of a faculty member. Contact department for additional information.
**Prerequisite:** 1 course with a minimum grade of C- from (ECON230, ECON321, BMGT230, STAT400); and 1 course with a minimum grade of C- from (ECON305, ECON325); and 1 course with a minimum grade of C- from (ECON306, ECON326); and minimum of 3 credits from ECON400-499 course range.
**Restriction:** Permission of BSOS-Economics department.
**Repeatable to:** 6 credits if content differs.

# EDCI - Curriculum and Instruction

**EDCI288 Special Topics in Teacher Education (1-3 Credits)**
**Restriction:** Permission of EDUC-Teaching, Learning, Policy and Leadership department.
**Repeatable to:** 6 credits if content differs.

**EDCI386 Experiential Learning (3-6 Credits)**
**Restriction:** Permission of EDUC-Teaching, Learning, Policy and Leadership department; and junior standing or higher.

**EDCI422 Student Teaching in Secondary Schools: Social Studies/ Geography (12 Credits)**
**Prerequisite:** EDCI321.
**Corequisite:** EDCI420.

**EDCI428 Field Experience in Secondary Social Studies Teaching (1 Credit)**
Practical experience as an aide to a regular social studies teacher; assigned responsibilities and participation in a variety of teaching/ learning activities. Students must reserve one full day per week for internship placement.
**Corequisite:** EDCI427.
**Restriction:** Must be in Secondary Educ: Social Studies program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department.

**EDCI438 Field Experience in Second Language Education (1 Credit)**
Practical experience as an aide to a regular foreign language teacher; assigned responsibilities and participation in a variety of teaching/learning activities.
**Corequisite:** EDCI330.
**Restriction:** Permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Secondary Educ: Foreign Languages program.
**Repeatable to:** 3 credits if content differs.

**EDCI448 Student Teaching in Secondary Schools: Theatre/English (12 Credits)**
Practical experience as an aide to a regular English, speech or drama teacher; assigned responsibilities and participation in a variety of teaching/learning activities.
**Prerequisite:** EDCI417.
**Corequisite:** EDCI440.
**Restriction:** Must be in Secondary Educ: English Language Arts program.

**EDCI464 Assessment for Reading (3 Credits)**
Examination of reading assessment theory, materials and procedures; Topics include validity and reliability in reading assessment, formal and informal assessment, reading instruction that is informed by ongoing assessment, and the effects of assessment on students and schooling in a diverse society.
**Prerequisite:** EDCI362.
**Restriction:** Senior standing. And must be in Elementary Education program; or must be in Early Childhood Education program.

**EDCI497 The Study of Teaching (3 Credits)**
Identification and examination of learner and teacher outcome variables related to teaching systems, methods, and processes. Methods of conducting classroom research.
**Prerequisite:** EDCI481.
**Corequisite:** EDCI489.

**EDCI498 Special Problems in Teacher Education (1-6 Credits)**
Individual study of approved problems.
**Restriction:** Must be in a major within EDUC-Teaching, Learning, Policy and Leadership department; or must be in Curriculum and Instruction (Doctoral) program; or must be in Curriculum and Instruction (Master's) program; or permission of EDUC-Teaching, Learning, Policy and Leadership department.
**Repeatable to:** 6 credits.

**EDCI499 Workshops, Clinics, and Institutes (1-6 Credits)**
The following types of educational enterprise may be scheduled under this course heading: workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.
**Repeatable to:** 6 credits.

# EDCP - Education Counseling and Personnel Services

**EDCP101 The Transfer Student in the University (1 Credit)**
Support transfer students in making a successful transition to the University. By making students aware of themselves as learners, introducing students to campus resources, and teaching research-based learning strategies, this course empowers students to become active and effective learners.
**Credit Only Granted for:** EDCP108G or EDCP101.
**Formerly:** EDCP108G.

**EDCP108 College and Career Advancement: Concepts and Skills (1 Credit)**
Knowledge and skills designed to enhance college as a learning experience or preparation for life.
**Repeatable to:** 3 credits if content differs.

**EDCP210 Peer Counseling Skills and Mental Health Advocacy (3 Credits)**
Introduction to core helping skills in peer counseling settings and three predominant theoretical approaches used in the counseling field (humanistic, psychodynamic, cognitive-behavioral). The course also explores mental health stigma and advocacy. Students will build an understanding of the practical application of underlying principles and theory in counseling and the helping professions, while exploring their own, and societal, biases, assumptions, and attitudes toward mental health.
**Restriction:** Must not have completed EDCP310; and must not have completed PSYC433.
**Credit Only Granted for:** EDCP210, EDCP310, or PSYC433.

**EDCP230 The Science and Practice of Happiness and Psychological Well-Being (3 Credits)**
An introduction to theory and research on positive psychology, subjective well-being, and the psychology of happiness. This will include examination of hedonic and eudaimonic models of well-being and sociocultural understandings of happiness, together with how it relates to health, relationships, money, religion, work, and social media. Students will also explore common misconceptions and myths about happiness and well-being and will engage in a variety of activities designed to deepen their understanding of happiness in their own lives and broader societal trends related to well-being.

**EDCP298 Special Problems in Counseling and Personnel Services (1-3 Credits)**
Individual instruction in special problems related to counseling, student leadership, and college student development.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.

**EDCP312 Multi-Ethnic Peer Counseling (3 Credits)**
Knowledge, skills, and attitude to function as peer helpers of Multi- Ethnic students.
**Restriction:** Sophomore standing or higher.
**Formerly:** EDCP310A.

**EDCP325 Substance Use and Abuse in American Society (3 Credits)**
Incidence, etiology, effects and management of substance use and abuse from perspective of the individual, the family, and society.

**EDCP386 Experiential Learning (3-6 Credits)**
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department; and sophomore standing or higher.

**EDCP462 Disability in American Society (3 Credits)**
Critical examination of the history of discrimination and analysis of current policies toward people with severe physical and mental disabilities.
**Restriction:** Must have earned a minimum of 30 credits; and sophomore standing or higher.

**EDCP489 Field Experiences in Counseling and Personnel Services (1-4 Credits)**
Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.

**EDCP498 Special Problems in Counseling and Personnel Services (1-3 Credits)**
Available only to major students who have formal plans for individual study of approved problems.
**Prerequisite:** Available only to major students who have formal plans for individual study of approved problems.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.

**EDCP499 Workshops, Clinics, Institutes (1-6 Credits)**
The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the Department of Counseling and Personnel Services (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listing; clinical experiences in counseling and testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups.
**Repeatable to:** 6 credits.

# EDHD - Education, Human Development

**EDHD200 Paradigms and Perspectives in Human Development (3 Credits)**
An introduction to the paradigms and perspectives that guide the study of human development across the lifespan in cognitive, social, physical and emotional domains. Topics of study include overlying principles, concepts, assumptions, theoretical frameworks, and research methods that influence ways in which development is conceptualized. The course is designed to provide insight into major questions of the day in human development and how these prevailing perspectives have evolved over time. This course will also help students understand how knowledge of theory and research is translated into practice in a variety of professional settings.
**Restriction:** Must have 45 or fewer credits; or must be in the Human Development program or Human Development minor.

**EDHD201 Learning How to Learn (3 Credits)**
Immerses students in the theoretical and empirical study of learning by engaging them in orchestrated experiences and activities drawn directly from the disciplinary research. Students achieve deep understanding of their own learning, as well as the means of enhancing that learning both in school and out-of-school contexts.

**EDHD210 Foundations of Early Childhood Education (3 Credits)**
Students explore historical and current research in early childhood education, primary models of curriculum and pedagogy in the field, and the relationship between critical aspects of young children's development and the creation of inclusive learning opportunities for all children, including children at risk. The concept of developmentally appropriate practice and its application across different developmental levels and early childhood classrooms will be introduced and connected with discussion in EDHD220 and EDSP211. Students examine issues in developing and implementing high quality early childhood education experiences for young children with and without disabilities, including the influence of family, culture, and community, the needs of children at risk (e.g., poverty, immigrant status, English Language Learners), and the role of assessment in early learning.
**Restriction:** Permission of EDUC-Human Development and Quantitative Methodology department.

**EDHD220 Exploring Early Childhood General and Special Education (3 Credits)**
Students who are considering a career in education will consider information about the teaching profession. Students reflect on their personal strengths, identify areas of growth, and examine their predisposition to work with young children with and without disabilities. They will discuss the nature of teaching, the moral and philosophic underpinnings that influenced their decision to enter into the teaching professions, as well as the roles and responsibilities of teachers and the characteristics and qualities for effective teachers (teaching styles and teacher's primary role in the classroom).
**Restriction:** Permission of EDUC-Human Development and Quantitative Methodology department.

**EDHD221 Aggression and Violence in Everyday Life: Can Violence Be Prevented? (3 Credits)**
History of aggression and violence in the world and in the United States. Examines the extent to which various forms are prevalent today and scientifically supported prevention strategies. Methods of studying aggression are reviewed, as are theories and methods of preventing aggression and violence.

**EDHD228 Research Experiences in Human Development (3 Credits)**
Provides students with hands-on participation in faculty-supervised laboratory research activities in the Department of Human Development & Quantitative Methodology. Students will learn about the purpose of scientific research and engage in activities that advance their knowledge and skills with regard to its ethical practice.
**Restriction:** Permission of instructor.
**Repeatable to:** 6 credits.

**EDHD230 Human Development and Societal Institutions (3 Credits)**
Development of the individual in the context of relationships with the formal and informal institutions of society. An examination of various aspects of development from the broad perspective of the social sciences.

**EDHD231 Inside 21st Century Creativity: How Creative Ideas, Concepts, and Products are Generated (3 Credits)**
Mechanisms of the creative mind. Psychological, social, sociological, developmental, cultural, educational, genetic and neural based roots of creativity.

**EDHD241 Are Two Languages Better than One: The Science and Controversy of Bilingualism (3 Credits)**
Examines the big question: Are two languages better than one? We will study the science of bilingualism: contemporary theories; research; controversies surrounding bilingual education; nature vs. nurture; first language acquisition. Additional studies cover: who is bilingual, how children become bilingual, factors that influence bilingual development, bilingual benefits and impact on brain development; bilingual education policy.

**EDHD306 Research Methods in Human Development (3 Credits)**
Addresses the scientific concepts and principles central to the study of human behavior and development. Students will learn about basic research methods in studying human behavior in developmental context and will participate in experiential activities, such as conducting observations and collecting self-report data. Major themes: goals of developmental research, fundamental research designs, types of measurement, elements of good scientific writing, and ethical issues in the study of human development.

**EDHD310 Your Brain on Education: The Neuroscience of Learning and Development (3 Credits)**
Investigation linking research in the brain science of learning and development, including the neural basis of academic skills, to achievement, disability, and broader applications to classroom learning. This course will focus on areas of education including language (spoken and written), conceptual change, numerical/quantitative processing, and social cognition as well as burgeoning areas of neuroscientific research in general cognitive processes such as attention, memory, and executive processing. These topics will be discussed with respect to typical and atypical development with some focus on developmental disabilities including autism, specific language impairment, reading and math impairment, and attention deficit disorders among others. This course will focus on both the theoretical perspectives and pragmatic issues of how evidence regarding brain development can or may be translated into useful or misleading information for educators, professionals, and parents/guardians of our children.
**Prerequisite:** PSYC100.

**EDHD313 Creative Experiences for Young Children (3 Credits)**
Provides preservice teachers with an understanding of the current research on the development of creativity and integration of the arts into an early childhood classroom.
**Restriction:** Must be in Early Childhood Education program.
**Credit Only Granted for:** EDHD313 or EDCI313.
**Formerly:** EDCI313.

**EDHD314 Reading in the Early Childhood Classroom (3 Credits)**
Early childhood students introduced to current research/methods on teaching language arts. Focus on development of linguistic and cognitive processes in emergent literacy and beginning reading and writing. Application to models for the instruction and assessment of reading/writing in preschool-aged children. Also includes material on classroom-based interventions for young children at risk of reading failure due to learning difficulties. Includes Field Experiences.
**Prerequisite:** EDHD210, EDHD220, and EDSP211.
**Corequisite:** EDHD425; and corequisite: EDHD419 or EDSP420.
**Restriction:** Must be enrolled in Professional Early Childhood/Early Childhood Special Education Program; and minimum cumulative GPA of 2.75.

**EDHD315 Reading in Early Childhood Classroom: Instruction and Materials Part II (3 Credits)**
This course builds on the theories and teaching strategies of EDHD314. Students will focus on teaching of reading and writing to primary grade students.
**Prerequisite:** EDHD314.
**Restriction:** Must be in Early Childhood Education program.

**EDHD319 Selected Topics in Human Development (3 Credits)**
Selected topics in human development in relation to contemporary culture.
**Repeatable to:** 6 credits if content differs.

**EDHD320 Human Development Through the Life Span (3 Credits)**
Central concepts related to parameters of human development, individual and social, which arise throughout the life span. Continuity and change within the developing individual.

**EDHD321 The Young Child as Scientist (2 Credits)**
Provides theoretical and practical knowledge for teaching science in early childhood classrooms. Appropriate teaching strategies and materials of instruction are presented for diverse settings. Includes field experience.
**Prerequisite:** EDHD419, EDHD314, EDHD313, EDHD424, and EDSP470.
**Corequisite:** EDHD323, EDHD322, EDHD315, EDHD435, and EDHD427.
**Restriction:** Must be in Early Childhood Education program; and senior standing or higher.

**EDHD322 The Young Child as Mathematician (3 Credits)**
Provides a theoretical and instructional framework for mathematics instruction in early childhood classrooms. Development of understanding of early childhood mathematics that emphasizes how and in what environment young children learn mathematics. Current thinking about both content and instructional strategies for mathematics curriculum, including identification and review of standards and expectations for learning outcomes for all children. Assessment strategies for evaluating all children will be addressed. Includes Phase 1 Field Experience.
**Prerequisite:** EDSP423, EDHD431, and EDSP315; and track 1: Must have completed EDSP 430, EDSP 433; OR Track 2: Must have completed EDHD415, EDHD 424.
**Corequisite:** EDHD323, EDSP321, EDSP417, EDHD441, EDHD442, EDHD443, and EDHD444.
**Restriction:** Must be in the Professional Early Childhood/Early Childhood Special Education program; and senior standing or higher; and minimum cumulative GPA of 2.75.

**EDHD323 Children Study their World (3 Credits)**
Provides theoretical and instructional framework for social studies instruction in inclusive early childhood classrooms. Course will reflect current thinking about content and instructional strategies for social studies curriculum; identification and review of standards/expectations for learning outcomes for all children; assessment strategies for evaluating of social studies objectives; use of data driven instruction to support all children; observation of children's understanding of their social world in field placements; opportunities to explore these understandings through interviews with children and the implementation of activities. Includes Phase 1 Field Experience.
**Prerequisite:** EDSP423, EDHD431, and EDSP315; and track 1: Must have completed EDSP430, EDSP433; or Track 2: Must have completed EDHD415, EDHD424.
**Corequisite:** EDHD322, EDSP417, EDHD441, EDHD443, EDHD442, EDHD444, and EDSP321.
**Restriction:** Must be in the Professional Early Childhood/Early Childhood Special Education program; and senior standing or higher; and minimum cumulative GPA of 2.75.

**EDHD386 Experiential Learning (3-6 Credits)**
**Restriction:** Permission of EDUC-Human Development and Quantitative Methodology department; and junior standing or higher.

**EDHD390 Career Paths and Internship Preparation in Human Development (1 Credit)**
Prepares degree candidates in Human Development for career paths in the field including initial job seeking skills, knowledge necessary for entry into various professions and preparation for the program internship requirement
**Restriction:** Must be in the Human Development major.

**EDHD400 Introduction to Gerontology (3 Credits)**
Multidisciplinary survey of the processes of aging. Physiological changes, cultural forces, and self-processes that bear on quality of life in later years. Field study of programs, institutions for elderly, individual elders, their families and care providers.

**EDHD402 Social Development (3 Credits)**
Social Development. Critical concepts and ideas of the study of child and adolescent social development. Focus on changes in interpersonal relationships, emotions, achievement-related behavior and competence, and functioning within the broader social context.
**Recommended:** EDHD411.

**EDHD405 Information Weaponization: Thinking Critically in a Changing World (3 Credits)**
Contemporary challenges--such as climate change, food, energy and water security, and deadly virus transmission--demand that people think critically. While many societal challenges are seriously impacting local, regional and global communities, an increasing availability of information has contributed to what many call a "Post-Truth Era." We will consider the institutional use of post-truth a form of information weaponization. This course asks how information weaponization impacts the evaluation of valid lines of evidence and explanations. How do we evaluate and what is needed to improve individuals' evaluations of claims? This course will focus on mythological and unproductive thinking, increased digital literacy, enhanced reasoning, evaluation skills, and critical thinking.
**Credit Only Granted for:** HNUH238Y or EDHD405.
**Formerly:** HNUH238Y.

**EDHD411 Child Growth and Development (3 Credits)**
Theoretical approaches to and empirical studies of physical, psychological and social development from conception to puberty. Implications for home, school and community.

**EDHD412 Infant Development (3 Credits)**
Infant development across domains, including perceptual, motor, cognitive, language, social and emotional functioning from pre-natal through third year of life.

**EDHD413 Adolescent Development (3 Credits)**
Adolescent development, including special problems encountered in contemporary culture. Observational component and individual case study.

**EDHD414 Development of the Scientific Mind Across the Lifespan (3 Credits)**
Study of the educational, cognitive, social, and cultural factors that underlie the development of the scientific mind across the lifespan.
**Recommended:** EDHD320.

**EDHD415 Promoting the Social-Emotional Competence of Young Children in Inclusive Classrooms (3 Credits)**
Teachers must have knowledge and skill regarding how to appropriately manage the classroom so that all children, those with and without disabilities, will be able to learn from their school experiences. Classroom management extends beyond responding to student misbehavior to include a comprehensive approach to addressing the social/emotional competence of typically and atypically developing children. The goal of this course is to prepare early childhood teachers who are able to sensitively, responsively, and effectively manage a classroom of young students who are typically developing and those who have disabilities. Includes Field Experience.
**Prerequisite:** EDHD314 and EDHD425; and (EDHD419 or EDSP420).
**Corequisite:** EDSP423, EDSP424, and EDHD431.
**Restriction:** Must be in the Professional Early Childhood/Early Childhood Special Education program; and junior standing or higher; and minimum cumulative GPA of 2.75.

**EDHD420 Cognitive Development and Learning (3 Credits)**
Current developmental theories of cognitive processes such as language, memory, and intelligence and how differences in cognitive level (infancy through adolescence) mediate learning of educational subject matters.
**Prerequisite:** EDHD320, EDHD411, PSYC341, or PSYC355; or permission of EDUC-Human Development and Quantitative Methodology department.

**EDHD421 Peer Relations (3 Credits)**
Historical and theoretical underpinnings to contemporary research on peer interactions, relationships, and groups. Focus on (1) inter-dependencies of individual characteristics, social behaviors, social relationships; (2) relations between familial factors and extra-familial peer interactions and relationships; (3) normal and abnormal peer relationships; and (4) cross cultural universals and differences.
**Recommended:** EDHD411.

**EDHD424 Culture, School & Community: Contexts for Learning (PreK-3rd) (3 Credits)**
Explores the development of the young child (with and without disabilities, as well as those at environmental risk) in the context of the family and community, with emphasis on the impact of state, federal and school system policy on the child's world. Course will consider issues within the family, and the wider socio-cultural ecology that relate to the child's ability to develop and learn. In addition, students will develop strategies for respectful and culturally responses approaches to actively engage families in their children's development and learning. Includes Field Experience.
**Prerequisite:** EDHD425 and EDHD314; and (EDHD419 or EDSP420).
**Corequisite:** EDSP315, EDHD431, EDHD415, and EDSP423.
**Restriction:** Must be in the Professional Early Childhood/Early Childhood Special Education program; and junior standing or higher; and minimum cumulative GPA of 2.75.

**EDHD425 Language Development and Reading Acquisition (3 Credits)**
This course focuses on young children's language development and the relationship between language and reading acquisition. Students will learn: concepts central to language development; language achievements at different ages; concepts of emergent literacy; models of reading acquisition and skilled reading.

**EDHD426 Cognitive and Motivational Literacy Content (3 Credits)**
Students preparing for secondary teaching will learn about the cognitive and motivational aspects of literacy and learning from text for the content areas of literature, science, history and mathematics. Different evidenced-based literacy approaches appropriate for content learning are presented. Characteristics of learning environments that enable students to engage productively with diverse texts, disciplinary tasks, and technological resources in content areas are identified.

**EDHD427 Constructing and Integrating the Early Childhood Curriculum (3 Credits)**
Explores the world from the child's perspective and constructs curriculum based on cognition, learning, and children's experiences. The integrated curriculum is the overarching framework for this course. Includes field experience.
**Prerequisite:** EDHD314, EDHD313, EDHD424, and EDSP470.
**Corequisite:** EDHD323, EDHD322, EDHD315, EDHD321, and EDHD435.
**Restriction:** Must be in Early Childhood Education program; and senior standing.

**EDHD431 Child Development and Learning, Three to Eight Years (3 Credits)**
Provides a basic understanding of child development theory and research, as well as specific knowledge about the development of children during the early and middle childhood "stages," specifically from ages 3 years to 8 years. A major emphasis will be the application of theory and research from the field of educational psychology to an understanding of how young children learn and achieve academically. Because the course will address the developmental and academic functioning of children with and without disabilities, a particular focus will be on individualization.
**Prerequisite:** Minimum grade of C- in EDHD314 and EDHD425; and 1 course with a minimum grade of C- from (EDHD419, EDSP420).
**Corequisite:** EDSP423 and EDSP315; and TRACK I: Must be concurrently enrolled in EDSP430, EDSP433; or TRACK 2: Must be concurrently enrolled in EDHD415, EDHD424.

**EDHD432 Internship in EC/ECSE (12 Credits)**
Interns spend five days per week in the classroom/home-based setting (under the mentorship of a certified teacher) where they gradually assume full responsibility for the planning, delivery and assessment of instruction or an intervention. Track I students will have an Infant/Toddler placement with special educator, Track II students will be in a Pre-K/K or Grade 1,2,3 classroom with general or special educator (must be opposite grade level and mentor from Phase I/fall of the senior year).
**Prerequisite:** EDHD323, EDHD322, EDSP417, EDHD441, EDHD442, EDHD443, EDHD444, and EDSP321.
**Corequisite:** EDHD437.
**Restriction:** Must be in Early Childhood and Early Childhood Special Education program; and senior standing or higher.

**EDHD434 Child Development, Birth to Three Years (3 Credits)**
Designed to provide students with an understanding of child development theory and research, as well as knowledge about typical and atypical development of children from birth to three years of age. The course emphasizes learning for children with and without disabilities, and for children who are at risk due to poverty and other environmental factors. The course will introduce how children develop and the challenges they face within the domains of physical, cognitive, language, social, and emotional development, with particular attention paid to the impact of risk factors on development. Students will become familiar with delays and differences in development that may occur as the result of disability. Finally, students will learn the effects of cultural and linguistic differences on growth and development. Information about theory and research in child development for children with and without disabilities will be enhanced through a series of observational experiences, which will build upon concepts addressed during class. Includes field experiences.
**Prerequisite:** EDHD210, EDHD220, and EDSP211.
**Corequisite:** EDHD314 and EDHD425.
**Cross-listed with:** EDSP420.
**Credit Only Granted for:** EDHD419A, EDSP420 or EDHD434.
**Formerly:** EDHD419A.

**EDHD435 Effective Components of the Early Childhood Classroom (3 Credits)**
Explores three topics integral to effective, child-centered early childhood classrooms: assessment, classroom management and parent involvement. Includes field experience.
**Prerequisite:** EDHD419, EDHD314, EDHD313, EDHD424, and EDSP470.
**Corequisite:** EDHD323, EDHD322, EDHD315, EDHD321, and EDHD427.
**Restriction:** Must be in Early Childhood Education program; and senior standing or higher.

**EDHD436 Cognition and Motivation in Content Area Literacy for Middle-School Students (3 Credits)**
Cognitive and motivational processes of literacy and learning from texts across subjects. Structured approaches to using reading, writing, and speaking for content learning based on approaches to knowledge, motivation, and strategies. Classroom contexts that enable middle-school students to engage with diverse texts and Internet resources are provided

**EDHD437 EC/ECSE Teachers as Researchers and Reflective Practitioners (3 Credits)**
Students use action research to improve instructional delivery or familial interactions in an effort to enhance the overall educational experiences/outcomes of children in classrooms or home-based contexts. Students will design and implement an action research project in an effort to meet a goal articulated in an applicable Individualized Education Plan (IEP) or Individualized Family Service Plan (IFSP) or School Improvement Plan (SIP) as the basis of their project.
**Prerequisite:** Minimum grade of C- in EDHD322, EDHD323, EDSP321, EDSP417, EDHD441, EDHD442, EDHD443, and EDHD444.
**Corequisite:** EDHD432.

**EDHD440 Adult Development (3 Credits)**
Major conceptual approaches to the study of adult development including physical, cognitive, social, emotional and self processes that take place within individuals as they progress from emerging adulthood through middle age.
**Prerequisite:** EDHD320; or permission of EDUC-Human Development and Quantitative Methodology department.
**Recommended:** EDHD413.

**EDHD441 Data Driven Decision Making in EC/ECSE (1 Credit)**
Students will be exposed to formative (e.g., classroom based, ongoing) and summative (e.g., standardized testing) assessments. Students will collect and analyze formative assessment data from their internship classrooms as the bases of planning and delivering instruction to meet the diverse needs of all learners. They will also analyze standardized assessment data to gain an understanding of measures used to determined cross-school and cross-teacher effectiveness. Includes Phase I field experience.
**Prerequisite:** Minimum grade of C- in EDSP423, EDHD431, and EDSP315; and TRACK I: Must have completed EDSP430 and EDSP433 or TRACK 2: Must have completed EDHD415 and EDHD424.
**Corequisite:** EDHD322, EDHD323, EDSP321, EDSP417, EDHD442, EDHD443, and EDHD444.

**EDHD442 Interventions for Children with Behavioral Challenges (1 Credit)**
Students will expand knowledge of and develop skills to address challenging behaviors in inclusive early childhood classrooms. Students examine the causes underlying challenging behaviors during the early childhood years, and identify appropriate resources and support services for working with families to develop a unified approach when responding to behavioral challenges. Includes Phase I field experience.
**Prerequisite:** Minimum grade of C- in EDSP423, EDHD431, and EDSP315; and TRACK I: Must have completed EDSP430 and EDSP 433; or TRACK 2: Must have completed EDHD415 and EDHD 424.
**Corequisite:** EDSP321, EDSP417, EDHD322, EDHD323, EDHD441, EDHD443, and EDHD444.

**EDHD443 Interventions for Children with Social and Communication Challenges (1 Credit)**
Students will learn about the characteristics of children with autism spectrum disorder, pervasive developmental disorder, social communication disorder, and other related challenges and will be equipped to meet the needs of this group of children in the early childhood classroom. The utilization of Universal Design for Learning (UDL), Response to Intervention (RTI) and other early childhood special education approaches, as they apply to this specific group of children, will be addressed. Interventions designed to improve the functioning of children with autism spectrum disorders and related disorders will be reviewed. Includes Phase I field experience.
**Prerequisite:** Minimum grade of C- in EDSP423, EDHD431, and EDSP315; and TRACK I: Must have completed EDSP430 and EDSP 433; or TRACK 2: Must have completed EDHD415 and EDHD 424.
**Corequisite:** EDHD322, EDSP321, EDSP417, EDHD323, EDHD441, EDHD442, and EDHD444.

**EDHD444 Action Research in EC/ECSE (1 Credit)**
Students will become familiar with the EC/ECSE research process, literature and how teachers use action research to improve pedagogy and the experiences of children in classrooms or home-based contexts. Students will utilize this knowledge, as well as either a goal in an Individualized Education Plan (IEP) or Individualized Family Service Plan (IFSP) or School Improvement Plan (SIP), to develop an action research study commenced during the following semester. Includes Phase I field experience.
**Prerequisite:** Minimum grade of C- in EDSP423, EDHD431, and EDSP315; and track 1: Must have completed EDSP430 and EDSP433; OR Track 2: Must have completed EDHD415 and EDHD424.
**Corequisite:** EDHD322, EDHD323, EDHD441, EDHD442, EDHD443, EDSP417, and EDSP321.

**EDHD460 Educational Psychology (3 Credits)**
Application of psychology to learning processes and theories. Individual differences, measurement, motivation, emotions, intelligence, attitudes, problem solving, thinking and communicating in educational settings.
**Prerequisite:** PSYC100; or permission of EDUC-Human Development and Quantitative Methodology department.

**EDHD474 Human Development Honors Seminar (3 Credits)**
This seminar will have three overarching goals: (1) expose students to fundamental research questions in human development; (2) create professional development opportunities through invited speakers and (3) communicate an understanding of diversity, equity, and inclusion in all aspects of the research process.
**Restriction:** Must be in the Human Development Honors program.

**EDHD475 Human Development Honors Thesis Preparation Course (3 Credits)**
This is an individual instruction course with the thesis faculty advisor. In this course, students will work towards writing and completing their honors thesis, which will include a review of relevant literature, the rationale for the research project, research questions, methods for data collection, analysis plan, results, and a discussion of the findings. Faculty advisors will communicate the goals of the major surrounding issues of diversity, equity, and inclusion.
**Prerequisite:** EDHD474.
**Restriction:** Must be in the Human Development Honors program.

**EDHD476 Human Development Honors Thesis Research (3 Credits)**
This is an individual instruction course with the thesis advisor, culminating in the presentation and defense of the student's thesis. Students will address the aspects of their research that reflect diversity, equity, and inclusion.
**Prerequisite:** EDHD475.
**Restriction:** Must be in the Human Development Honors program.

**EDHD488 Special Topics in Human Development (3 Credits)**
Special and intensive treatment of current topics and issues in human development.
**Prerequisite:** EDHD320.
**Recommended:** PSYC100.
**Restriction:** Permission of EDUC-Human Development and Quantitative Methodology department.
**Repeatable to:** 6 credits if content differs.

**EDHD489 Field Experiences in Human Development (3-6 Credits)**
Planned field experience (internship or research-based activities) related to Human Development. Credit not to be granted for experiences accrued prior to registration.
**Restriction:** Permission of EDUC-Human Development and Quantitative Methodology department.
**Repeatable to:** 6 credits.

**EDHD498 Special Research Problems in Human Development (1-4 Credits)**
Exploration of current research problems in the study of human development. Available only to students who have definite plans for individual study of approved research problems. Credit according to extent of work.
**Restriction:** Permission of EDUC-Human Development and Quantitative Methodology department.
**Repeatable to:** 6 credits.

**EDHD499 Workshops, Clinics, and Institutes (1-6 Credits)**
The following types of educational enterprise may be scheduled under this course heading: workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.
**Repeatable to:** 6 credits.

# EDHI - Education Leadership, Higher Ed and International Ed

**EDHI288 Special Problems in Education (1-6 Credits)**
Available only to freshmen and sophomore students who have definite plans for individual study of approved problems relative to their preparation for teaching.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department; and available only to freshmen and sophomore students who have definite plans for individual study of approved problems relative to their preparation for teaching.
**Formerly:** EDPL288.

**EDHI338 Teaching and Learning about Cultural Diversity through Intergroup Dialogue (1-3 Credits)**
Engages students, from one or more cultural identity groups, in facilitated dialogue about the similarities and differences of experience that exist within a group and/or between and across groups. The goal of intergroup dialogue is for students to develop comfort with, and skill for, discourse on difficult topics toward the end of fostering positive, meaningful, and sustained cross-group relationships. Whereas in debate, students learn to listen to gain advantage, in intergroup dialogue, students learn to listen to gain understanding. In so doing, students develop increased multicultural interaction facility, heightened intergroup awareness and sensitivity, and greater commitment to civic engagement.
**Prerequisite:** Completion of on-line registration form.
**Repeatable to:** 6 credits if content differs.
**Formerly:** EDPL288.

**EDHI488 Special Topics in Education Policy and Administration (1-3 Credits)**
Special and intensive treatment of current topics and issues in education policy and administration.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.
**Repeatable to:** 6 credits.
**Formerly:** EDPL488.

**EDHI489 Field Experiences in Education (1-4 Credits)**
Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.
**Formerly:** EDPL489.

**EDHI498 Special Problems in Education (1-3 Credits)**
Available only to students who have definite plans for individual study of approved problems.
**Prerequisite:** Available only to students who have definite plans for individual study of approved problems.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.
**Formerly:** EDPL498.

**EDHI499 Workshops, Clinics, and Institutes (1-6 Credits)**
The following type of educational enterprise may be scheduled under this course heading: Workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals, and supervisors.
**Repeatable to:** 6 credits.
**Formerly:** EDPA499.

# EDMS - Measurement, Statistics, and Evaluation

**EDMS410 Classroom Assessment (3 Credits)**
Developing and using classroom assessments, including tests, performance assessments, rating scales, portfolios, observations and oral interactions; basic psychometric statistics; standard setting; grading; communicating assessment information; testing ethics; locating and evaluating measures; program evaluation and classroom research; assessments used for educational policy decisions.
**Restriction:** Junior standing or higher.

**EDMS451 Introduction to Educational Statistics (3 Credits)**
Introduction to statistical reasoning; location and dispersion measures; computer applications; regression and correlation; formation of hypotheses tests; t-test; one-way analysis of variance; analysis of contingency tables.
**Restriction:** Sophomore standing or higher.

**EDMS489 Field Experiences in Measurement and Statistics (1-4 Credits)**
Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.
**Restriction:** Permission of EDUC-Human Development and Quantitative Methodology department.
**Repeatable to:** 4 credits.

**EDMS498 Special Problems in Measurement and Statistics (1-3 Credits)**
Available only to education majors who have formal plans for individual study of approved problems.
**Prerequisite:** Available only to education majors who have formal plans for individual study of approved problems.
**Restriction:** Permission of EDUC-Human Development and Quantitative Methodology department.
**Repeatable to:** 6 credits.

# EDPS - Education Policy Studies

**EDPS310 Foundations of Education (3 Credits)**
Social context of education and conflicts over philosophies, values, and goals that are reflected in educational institutions in our pluralistic society. Helps teachers become reflective, critical thinkers about the social and philosophical issues they face and the choices they make.
**Credit Only Granted for:** EDPL301 or EDPS301.
**Formerly:** EDPL301.

**EDPS401 Educational Policy, and Social Change (3 Credits)**
An examination of education policy in relation to the social environment and change. Contemporary education and social issues are examined, including technology as a complex force which influences social change. This is a Social Foundations course.
**Credit Only Granted for:** EDPL401 or EDPS401.
**Formerly:** EDPL401.

# EDSP - Education, Special

**EDSP210 Foundations of Special Education: Inclusive Practices (3 Credits)**
Students examine historical foundations of special education, including legislation; review components necessary for effective service delivery; and develop an understanding of the role of collaboration and consultation with parents, school personnel and other professionals.
**Restriction:** Sophomore standing or lower.
**Credit Only Granted for:** EDSP210, EDSP211 or EDSP470.

**EDSP211 Foundations of Special Education: Inclusive Practices (3 Credits)**
Students examine historical foundations of special education, including legislation; review components necessary for effective service delivery; and develop an understanding of the role of collaboration and consultation with parents, school personnel and other professionals.
**Restriction:** Sophomore standing or lower; and permission of EDUC-Counseling, Higher Education and Special Education department.
**Credit Only Granted for:** EDSP210, EDSP211 or EDSP470.

**EDSP220 Disability in Community: Access, Accommodation, and Adaptation (3 Credits)**
Examines the concept of disability in a variety of community settings. Drawing on classic and contemporary readings in psychology, sociology and special education, the course will couple conceptual and historical understanding of disability with first-hand service-learning experiences in the community. Students will develop a plan in several phases that encompasses principles of Universal Design for Living/Learning (UDL) to study and participate in community-based activities.

**EDSP288 Special Topics in Teacher Education (1-3 Credits)**
**Restriction:** Must be in a major in EDUC-College of Education; or permission of EDUC-Counseling, Higher Education and Special Education department.
**Repeatable to:** 6 credits if content differs.

**EDSP298 Special Problems in Teacher Education (1-6 Credits)**
Available only to freshmen and sophomore education majors who have definite plans for individual study of approved problems relative to their preparation for teaching. Credit according to extent of work.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department; and available only to freshmen and sophomore education majors who have definite plans for individual study of approved problems relative to their preparation for teaching.

**EDSP310 International Perspective on Educational Access for People with Disabilities (3 Credits)**
A deep dive into the intersectionality of disability, culture, social norms, policy and more that impacts educational access for people with disabilities in a global context.

**EDSP311 Peer Mentor Training and Certification (3 Credits)**
Provides opportunities and training to facilitate inclusion of students with ID/DD on campus as a peer mentor. Students will develop understanding of disabilities and other conditions that could affect learning and other activities and learn ways to assist and build friendship through a mentor-mentee relationship.

**EDSP315 Inclusive Instruction: Reading Methods II (3 Credits)**
Focus on current research and methods of teaching reading in the primary grades. Examination of development of a balanced literacy program of children of all reading levels in inclusive early childhood classrooms. Students will learn to select and use a variety of evidence-based reading strategies and assessment tools for reading and writing instruction. Includes field experiences.
**Prerequisite:** EDHD314 and EDHD425; and (EDHD419 or EDSP420).
**Corequisite:** EDSP423 and EDHD431; and track 1: Must be concurrently enrolled in EDSP430 and EDSP433; OR Track 2: Must be concurrently enrolled in EDHD415 and EDHD424.

**EDSP321 The Young Child As Scientist (3 Credits)**
A theoretical and pedagogical framework for evidence-based inclusive science instruction in inclusive early childhood classrooms. Examination of principles of inquiry-based science learning and develop strategies for helping children acquire fundamental problem-solving skills that may be applied to understanding a wide array of science content. Assessment strategies for evaluating the achievement of science objectives, and the achievement for all children will be addressed. Includes field experience.
**Prerequisite:** EDSP423, EDHD431, and EDSP315; and track 1: Must have completed EDSP430 and EDSP433; OR Track 2: Must have completed EDHD415 and EDHD424.
**Corequisite:** EDHD322, EDHD323, EDSP417, EDHD441, EDHD442, EDHD443, and EDHD444.

**EDSP376 Fundamentals of Sign Language (3 Credits)**
Receptive and expressive skills in American Sign Language. Examination of the causes of deafness, characteristics of deaf education, and aspects of the culture of the deaf community.

**EDSP386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.
**Restriction:** Junior standing or higher.

**EDSP400 Instruction of Students with Severe Disabilities I (3 Credits)**
Functional assessment procedures and instructional methods for students with severe disabilities.
**Restriction:** Must be in Special Education program. Jointly offered with EDSP602.
**Credit Only Granted for:** EDSP400 or EDSP602.

**EDSP401 Teaching Students with Disabilities in Elementary Classrooms (3 Credits)**
This course is designed for elementary education majors to prepare for teaching students with disabilities in elementary classrooms. The course examines the legal requirements for general education teachers in the public schools including best practices for participating in the Individual Education Program (IEP) team process, and understanding Response to Intervention (RTI) as a approach to the early identification and support of students with learning and behavior needs. Information is provided on the characteristics of students who have been identified as having high incidence disabilities (e.g., learning disabilities, attention deficit hyperactivity disorder, speech and language delays, emotional or behavioral disorders, and other health impairments). The course then provides information on universal design (UDL) principles for learning, instructional suggestions to include students with disabilities in the general classroom, co-teaching and methods for integrating technology and assistive technology to benefit all students.
**Restriction:** Permission of EDUC-Special Education department.
**Credit Only Granted for:** EDSP401 or EDSP499F.
**Formerly:** EDSP499F.

**EDSP402 Field Placement: Severe Disabilities I (1 Credit)**
Practicum experience in settings serving students with severe disabilities.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.

**EDSP403 Supporting Access for Students with Multiple Disabilities Across Settings (3 Credits)**
Knowledge and practices in characteristics of multiple disabilities, assessment, individualized educational programming, universal design processes for instruction, assistive technology, environmental accessibility, and collaboration.
**Prerequisite:** EDSP400 or EDSP602.
**Jointly offered with:** EDSP603.
**Credit Only Granted for:** EDSP403 or EDSP603.

**EDSP404 Methods of Teaching Autistic Students (3 Credits)**
Characteristics of children and youth diagnosed with an autism spectrum disorder (ASD), assessment, and evidence-based instructional methods in teaching autistic students who come from diverse ethnic, cultural, and socio-economic backgrounds.
**Jointly offered with:** EDSP604.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.
**Credit Only Granted for:** EDSP404 or EDSP604.

**EDSP410 Instruction of Students with Severe Disabilities II (3 Credits)**
Functional assessment, curriculum, and instruction related to academic and community functioning skills for students with severe disabilities.
**Restriction:** Must be in Special Education program. Jointly offered with EDSP614.
**Credit Only Granted for:** EDSP410 or EDSP614.

**EDSP411 Foundations of Technology Integration for Curriculum Access (3 Credits)**
Addresses ways to integrate technology and Assistive Technology (AT) into content area instruction, use Accessible Educational Materials (AEM), and the Universal Design for Learning (UDL) framework to evaluate, analyze, and develop responsive instruction.
**Prerequisite:** EDSP210 or EDSP470.
**Restriction:** Must be in Special Education program.

**EDSP413 Principles and Practices in Positive Behavior Interventions and Classroom Supports (3 Credits)**
Use of positive behavior supports to promote both classwide and individual student behavior skills through function-based behavior assessment, establishing classroom expectations, and examining common misbehaviors that often result in learning loss.
**Jointly offered with:** EDSP613.
**Restriction:** Must be in Special Education program.
**Credit Only Granted for:** EDSP413 or EDSP613.

**EDSP415 Assessment Techniques and Practices in Special Education (3 Credits)**
Knowledge and skills for understanding assessment process and interpretation of assessment data. Emphasis on psychometric aspects of assessment related to screening, eligibility, and intervention planning within a Multi-Tiered System of Supports (MTSS).
**Recommended:** STAT100; or SOCY201.
**Jointly offered with:** EDSP615.
**Restriction:** Must be in Special Education program.
**Credit Only Granted for:** EDSP415 or EDSP615.

**EDSP416 Reading and Writing Instruction in Special Education I (3 Credits)**
Assessment and instruction of reading and writing skills for students in special education.
**Restriction:** Must be in Special Education program. Jointly offered with EDSP616.
**Credit Only Granted for:** EDSP416 or EDSP616.

**EDSP417 Reading Diagnosis and Assessment (3 Credits)**
Reading Diagnosis and Assessment prepares teacher candidates to assess children in general and special early childhood educations settings in the areas of reading and writing in order to plan for instruction. The course will focus on diagnostic, screening, progress monitoring, and outcome assessments in early and beginning literacy. The course is designed to provide participants with the knowledge and skills necessary to collect and use a wide range of assessment data in general education and special education settings. Includes field experience.
**Prerequisite:** EDSP423, EDHD431, and EDSP315; and track 1: Must have completed EDSP430 and EDSP433; OR Track 2: Must have completed EDHD415 and EDHD424.
**Corequisite:** EDHD322, EDHD323, EDSP321, EDHD441, EDHD442, EDHD443, and EDHD444.

**EDSP420 Child Development, Birth to Three Years (3 Credits)**
Designed to provide students with an understanding of child development theory and research, as well as knowledge about typical and atypical development of children from birth to three years of age. The course emphasizes learning for children with and without disabilities, and for children who are at risk due to poverty and other environmental factors. The course will introduce how children develop and the challenges they face within the domains of physical, cognitive, language, social, and emotional development, with particular attention paid to the impact of risk factors on development. Students will become familiar with delays and differences in development that may occur as the result of disability. Finally, students will learn the effects of cultural and linguistic differences on growth and development. Information about theory and research in child development for children with and without disabilities will be enhanced through a series of observational experiences, which will build upon concepts addressed during class. Includes field experiences.
**Prerequisite:** EDHD210, EDHD220, and EDSP211.
**Corequisite:** EDHD314 and EDHD425.
**Cross-listed with:** EDHD434.
**Credit Only Granted for:** EDHD419A, EDSP420 or EDHD434.
**Formerly:** EDHD419A.

**EDSP422 Curriculum and Instruction: Early Childhood Special Education (3 Credits)**
Curriculum and instruction for young children with mild and moderate disabilities, preschool through primary grades.
**Restriction:** Must be in Special Education program. Jointly offered with EDSP627.
**Credit Only Granted for:** EDSP422 or EDSP627.

**EDSP423 Assessment in Early Childhood Special Education (3 Credits)**
Assessment procedures for infants and young children with disabilities, birth through grade 3.
**Restriction:** Must be in Special Education program.
**Credit Only Granted for:** EDSP423 or EDSP624.

**EDSP424 Field Placement in Special Education: Early Childhood II (2-4 Credits)**
Field experience in early childhood special education.
**Restriction:** Must be in Special Education program.

**EDSP425 Pre-Internship I (1 Credit)**
This required EDSP field placement is a 3-hour per week seminar and field placement that meets across 15 weeks. Opportunities are provided to observe and participate in instructional experiences under the guidance of an assigned Host Teacher (HT) in a four-week experience in a high incidence placement AND a four-week experience in a low incidence (LI) placement. The purpose is to provide each special education teacher candidate (TC) with practical experience to complete field-based requirements and begin to meet the CEC Initial Preparation Standards (2012). Furthermore, since EDSP 425 is the first internship experience in the Special Education Program in the College of Education at University of Maryland, teacher candidates will become familiar with the Special Education Program, College of Education, Maryland State Department of Education (MSDE), Counsel for Accreditation of Educator Preparation (CAEP), and Council for Exceptional Children (CEC) expectations and requirements for graduation and teacher licensure.
**Corequisite:** EDSP451 and EDSP400.
**Restriction:** Must be in the Special Education major.

**EDSP426 Pre-Internship II (1 Credit)**
A 3-hour per week seminar and field placement that meets across 15 weeks. Teacher candidates will assess and provide instruction for first grade students at a local public elementary school. The field experience is also supported through content delivered in EDSP 415/615 (Assessment in Special Education) and EDSP 416/616 (Reading and Writing Instruction in Special Education). The tutoring program is meant to provide an opportunity for teacher candidates to practice the assessment and instructional skills they are learning, while also providing a needed service to the community. Teacher candidates will work one-on-one with select first graders whose teachers have determined to be in need of extra support in reading and writing.
**Corequisite:** EDSP415 and EDSP416.
**Restriction:** Must be in the Special Education major.

**EDSP430 Early Intervention: Early Childhood Special Education (3 Credits)**
Intervention with infants and young children with disabilities. Focus on moderate and severe disabilities.
**Restriction:** Must be in Special Education program.
**Credit Only Granted for:** EDSP430 or EDSP631.

**EDSP433 Families and Culture in Early Intervention (Birth-5) (3 Credits)**
Provides students with the skills and information they need to work effectively with families of young children (birth to age 5) who have or are at risk for disabilities in early childhood or early intervention programs. Students will review current local, state and federal policies establishing the rights of families of infants and young children with disabilities to participate in decision making for their child. We will discuss relevant theoretical and research literature as well as the cultural and contextual issues involved in working with families of very young children. Includes field experiences.
**Prerequisite:** EDHD314 and EDHD425; and (EDHD419 or EDSP420).
**Corequisite:** EDSP430, EDSP315, and EDHD431.

**EDSP434 Field Placement in Special Education: Secondary Middle I (2-4 Credits)**
Field experience in secondary middle special education.
**Restriction:** Must be in Special Education program.

**EDSP435 Field Placement in Special Education: Secondary Middle II (2-4 Credits)**
Field experience in secondary middle special education.
**Restriction:** Must be in Special Education program.

**EDSP443 Language and Literacy Acquisition in Children with Disabilities (3 Credits)**
Language and literacy acquisition and characteristics of typical and atypical language development in supporting students with reading and writing disabilities.
**Restriction:** Must be in Special Education program.
**Additional Information:** This course is the first of four reading courses required by the Maryland State Department of Education for teacher certification in Special Education.

**EDSP451 Curriculum and Instruction: Elementary/Middle Special Education (3 Credits)**
Methods for instruction of students with disabilities in the general education curriculum. Collaboration with other professionals is included.
**Restriction:** Must be in Special Education program. Jointly offered with EDSP652.
**Credit Only Granted for:** EDSP451 or EDSP652.

**EDSP452 Internship I: Elementary/Middle Special Education (2-4 Credits)**
Field experience in elementary/middle school special education.
**Restriction:** Must be in Special Education program. Jointly offered with EDSP692.
**Credit Only Granted for:** EDSP452 or EDSP692.

**EDSP453 Methods and Models of Instruction: Elementary Special Education (3 Credits)**
Focus on models and methods of instruction responsive to the cognitive, linguistic, and cultural characteristics of elementary students in special education.
**Restriction:** Must be in Special Education program.
**Credit Only Granted for:** EDSP453 or EDSP653.

**EDSP454 Field Placement in Special Education: Elementary II (2-4 Credits)**
Field experience in elementary special education.
**Restriction:** Must be in Special Education program.

**EDSP455 Assessment in Elementary Special Education (3 Credits)**
Focus on selection, administration, and interpretation of assessment tools and results for designing instruction and evaluating progress of elementary students in special education.
**Restriction:** Must be in Special Education program. Jointly offered with EDSP654.
**Credit Only Granted for:** EDSP455 or EDSP654.

**EDSP466 Issues and Models of Instruction: Middle/Secondary Special Education (3 Credits)**
Issues, legislation, and service models in middle/secondary special education. Emphasis on career and vocational education, self-determination, and transition.
**Restriction:** Must be in Special Education program. Jointly offered with EDSP664.
**Credit Only Granted for:** EDSP466 or EDSP664.

**EDSP470 Introduction to Special Education (3 Credits)**
Designed to give an understanding of the needs of all types of exceptional children.
**Restriction:** Must not have completed EDSP210.
**Credit Only Granted for:** EDSP210, EDSP211 or EDSP470.

**EDSP476 Communicating with Sign Language (3 Credits)**
Intermediate level receptive/expressive skills in American Sign Language. Aspects of the culture, history, and research perspectives of the deaf community.
**Prerequisite:** EDSP376.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.

**EDSP484 Reading and Writing Instruction in Special Education II (3 Credits)**
Focus on the development of reading and writing programs for students in special education. Builds on foundations established in EDSP416.
**Prerequisite:** EDSP416.
**Restriction:** Must be in Special Education program. Jointly offered with EDSP684.
**Credit Only Granted for:** EDSP484 or EDSP684.

**EDSP485 Assessment and Instruction in Mathematics in Special Education (3 Credits)**
Instructional methods and assessment in mathematics in special education.
**Restriction:** Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Jointly offered with EDSP683.
**Credit Only Granted for:** EDSP485 or EDSP683.

**EDSP486 Promoting Prosocial Behavior in Special Education (3 Credits)**
Focus on social development among students with and without disabilities, the relationship between pedagogy and student behavior, and classroom, school, and community approaches for developing prosocial behavior.
**Restriction:** Must be in Special Education program.
**Credit Only Granted for:** EDSP486 or EDSP686.

**EDSP487 Collaborative Partnerships in Special Education (3 Credits)**
Strategies for positively collaborating with families, practitioners, and community stakeholders to implement Specially Designed Instruction (SDI) for students with disabilities.
**Jointly offered with:** EDSP687.
**Restriction:** Must be in Special Education program.
**Credit Only Granted for:** EDSP487 or EDSP687.

**EDSP488 Selected Topics in Teacher Education (1-3 Credits)**
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department; or must be in a major in EDUC-College of Education.
**Repeatable to:** 6 credits if content differs.

**EDSP489 Field Experiences in Special Education (1-4 Credits)**
Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.

**EDSP490 Teacher Candidate Research Seminar in Special Education (3 Credits)**
Study of current issues and research concerning the education of students in special education.
**Restriction:** Must be in Special Education program.

**EDSP495 Internship II: Elementary/Middle Special Education (6-12 Credits)**
Internship II is a full-time 15 week field-placement experience in a local school system working with students with disabilities in an elementary or middle school environment. Internship II allows the intern to apply and integrate teaching competencies and responsibilities by systematically increasing independence in conducting all aspects of the special education mentor teacher's role. The intern will incrementally assume responsibility for planning, instruction, management, collaboration, and other essential tasks assigned in their internship placement. The intern will be responsible for the successful completion of edTPA, seminar assignments, and self-evaluation using Live Text for Foundational Competencies (FCs) and the Performance Based Assessment (PBA). Interns will be asked to recall and integrate course content from their prerequisite coursework during seminar and their field placement experience.
**Corequisite:** EDSP490.
**Jointly offered with:** EDSP695.
**Restriction:** Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)).
**Credit Only Granted for:** EDSP495 or EDSP695.

**EDSP498 Special Problems in Special Education (1-6 Credits)**
Available only to education majors who have definite plans for individual study of approved problems. Credit according to extent of work.
**Prerequisite:** Available only to education majors who have definite plans for individual study of approved problems.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.

**EDSP499 Workshops, Clinics, and Institutes in Special Education (1-6 Credits)**
The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the special education department (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listing. Laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.
**Repeatable to:** 6 credits if content differs.

# EDUC - Education

**EDUC386 Experiential Learning (3-6 Credits)**
**Restriction:** Permission of EDUC-College of Education; and junior standing or higher.

**EDUC388 Special Topics in Education (3 Credits)**
**Restriction:** Permission of EDUC-College of Education.
**Repeatable to:** 6 credits if content differs.

**EDUC401 International and Multicultural Perspectives in Education (3 Credits)**
Comparison of historical changes and current challenges, and how culture, diversity and tolerance in the US and Netherlands impacts education systems. Experiential visits to historical sites, educational institutions and notable landmarks, with a critical reflection on similarities, differences and intersections of culture, diversity, tolerance and change.
**Restriction:** By permission of the College of Education and the Education Abroad Office .
**Credit Only Granted for:** EDUC498I or EDUC401.
**Formerly:** EDUC498I.
**Additional Information:** This is a 3-week living-learning study abroad experience in the Netherlands, Germany and Belgium. The course is offered through the Education Abroad office. Prospective students must complete the MYEA application. Myea.umd.edu.

**EDUC478 Using Information Technology in Schools (1-3 Credits)**
Strategies, resources, tools and organizational concepts for using technology to facilitate classroom learning and school administrative functions.
**Restriction:** Permission of EDUC-College of Education; and junior standing or higher.
**Repeatable to:** 6 credits if content differs.

**EDUC498 Selected Topics in Education (1-3 Credits)**
Current topics and issues in education.
**Restriction:** Permission of EDUC-College of Education.
**Repeatable to:** 9 credits if content differs.

**EDUC499 Honors Thesis (1-6 Credits)**
Individual thesis work under supervision of faculty advisors; includes periodic seminar meetings with other honors students engaged in thesis work.
**Prerequisite:** Admission to College Honors Program.
**Restriction:** Permission of EDUC-College of Education.

# ENAE - Engineering, Aerospace

**ENAE100 The Aerospace Engineering Profession (1 Credit)**
Overview of salient aspects of professional practice of Aerospace Engineering. Introduction to the range of technical expertise needed to succeed in the profession and the objectives of the various parts of the Aerospace Engineering program at UMCP in supporting students' efforts in gaining the required knowledge and skills. Familiarization with departmental faculty and their areas of research, creation of links with other students, professional society student chapters, and available resources. Discussion of ethical issues, business requirements, and their interactions with technical developments.
**Recommended:** ENES100 and MATH140.

**ENAE200 Aerospace Engineering Profession II (1 Credit)**
Overview of the engineering profession as it pertains to the role of the engineer in society, professional practice and ethical standards, career development, opportunities and need for lifelong learning, importance of safety and standards, effective written, visual, and oral communications, and the impact of the engineering profession on global issues.
**Recommended:** ENAE100.
**Restriction:** Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department.

**ENAE202 Computing Fundamentals for Engineers (3 Credits)**
Introduction to computational tools for the solution of engineering problems. C++ & MATLAB programming including branching and loops, functions, file handling, arrays, and data structures. Students will be introduced to object-oriented programming, basic computing, algorithms, and principles of software engineering.
**Corequisite:** MATH141.
**Credit Only Granted for:** ENAE202 or ENME202.

**ENAE283 Introduction to Aerospace Systems (3 Credits)**
Introduction to airplanes and space vehicles as aerospace systems. Fundamentals that describe these systems. Elements of aerodynamics, airfoils and wings. Airplane performance, stability and control. Aircraft and rocket propulsion. Fundamentals of orbital motion. Aspects of vehicle conceptual design.
**Prerequisite:** PHYS161, MATH141, and ENES102.
**Corequisite:** PHYS261 and PHYS260.
**Restriction:** Must be in Engineering: Aerospace program.
**Credit Only Granted for:** (ENAE281 and ENAE282) or ENAE283.
**Formerly:** ENAE281 and ENAE282.

**ENAE288 Topics in Aerospace Engineering (1-3 Credits)**
Introductory topics in the field of aerospace engineering.
**Restriction:** Permission of ENGR-Aerospace Engineering Department.
**Repeatable to:** 6 credits if content differs.

**ENAE301 Dynamics of Aerospace Systems (3 Credits)**
Kinematics and dynamics of three dimensional motion of point masses and rigid bodies with introduction to more general systems. Primary emphasis on Newtonian methods. Practice in numerical solutions and computer animation of equations of motion using MATLAB.
**Prerequisite:** PHYS271, MATH461, PHYS270, MATH246, ENAE283, ENAE202, ENES102, and MATH241.
**Restriction:** Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department.

**ENAE311 Compressible Aerodynamics (3 Credits)**
Fundamentals of aerodynamics. Elements of compressible flow. Normal and oblique shock waves. Flows through nozzles, diffusers and wind tunnels. Elements of the method of characteristics and finite difference solutions for compressible flows. Aspects of hypersonic flow.
**Prerequisite:** PHYS271, (MATH240 or MATH461), PHYS270, MATH246, ENAE283, ENES220, ENAE202, MATH241, and ENES232.
**Restriction:** Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department; and junior standing or higher.

**ENAE324 Aerospace Structures (4 Credits)**
Analysis of torsion, beam bending, plate bending, buckling and their application to aerospace.
**Prerequisite:** ENES220.
**Restriction:** Must be in Engineering: Aerospace program.

**ENAE362 Aerospace Instrumentation and Experimentation (3 Credits)**
Basic instrumentation electronics including DC electronics, AC electronics, semiconductors, electro-optics and digital electronics. Sensing devices used to carry out experiments in Aerospace Engineering includes metrology, machine tool measurements, bridge circuits, optical devices, and introduction to computer based data acquisition. Topics chosen to support measurements in aerodynamics, flight structures and flight control.
**Prerequisite:** MATH246 and ENAE283.
**Restriction:** Must be in Engineering: Aerospace program; and junior standing or higher.

**ENAE380 Flight Software Systems (3 Credits)**
Avionics using advanced sensor and computing technologies are at the heart of every modern Aerospace vehicle. Advanced software systems to improve cockpit safety and enable unmanned and deep-space missions. Object-oriented programming and software engineering concepts required to design and build complex flight software systems. Software validation, verification and real-time performance analysis to assess flight software system reliability and robustness. Human-machine interface design for piloted systems. Automatic onboard data acquisition and decision-making for unmanned air and space vehicles.
**Prerequisite:** ENAE283 and ENAE202.
**Restriction:** Must be in Engineering: Aerospace program; and junior standing or higher.

**ENAE398 Honors Research Project (1-3 Credits)**
Planned sequence of steps in aerospace honors research in which students take three (3) consecutive semesters of this course in partial fulfillment of aerospace engineering honors program requirements. The first semester consists of a series of seminars and meetings with faculty mentors on honors research; two semesters consist of undergraduate honors research project and paper conducted under the direction of an aerospace engineering faculty member to be presented at a conference.
**Prerequisite:** Must be accepted into Aerospace Honors Program.
**Restriction:** Must be in Engineering: Aerospace program.
**Repeatable to:** 3 credits if content differs.

**ENAE403 Aircraft Flight Dynamics (3 Credits)**
Study of motion of aircraft, equations of motion, aerodynamic force representation, longitudinal and lateral motions, response to controls and to atmospheric disturbances, handling qualities criteria and other figures of merit.
**Prerequisite:** ENAE414 and ENAE432.
**Restriction:** Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department.

**ENAE404 Space Flight Dynamics (3 Credits)**
Three-dimensional motion under central fields. Solutions to orbital motion, orbital elements, time elements. Kepler's laws. Orbital maneuvering, rendezvous and station-keeping. Rigid-body attitude dynamics, spacecraft attitude dynamics.
**Prerequisite:** ENAE301.
**Restriction:** Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department.

**ENAE414 Incompressible Aerodynamics (3 Credits)**
Aerodynamics of inviscid incompressible flows. Aerodynamic forces and moments. Fluid statics/buoyancy force. Vorticity, circulation, the stream function and the velocity potential. Bernoulli's and Laplace's equations. Flows in low speed wind tunnels and airspeed measurement. Potential flows involving sources and sinks, doublets, and vortices. Development of the theory of airfoils and wings.
**Prerequisite:** PHYS271, (MATH240 or MATH461), PHYS270, MATH246, ENAE283, ENES220, ENAE202, MATH241, and ENES232.
**Restriction:** Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department; and junior standing or higher.

**ENAE415 Helicopter Theory (3 Credits)**
Elementary exposition on the theory and practice of aerodynamics applied to helicopters and other rotary wing aircraft.
**Prerequisite:** ENAE414.
**Restriction:** Must be in Engineering: Aerospace program.

**ENAE420 Computational Structural Mechanics (3 Credits)**
Introductory of finite element methods for aerospace engineering modeling and analysis; equips students with ability to understand manuals of commercial finite element analysis software.
**Prerequisite:** ENES220 and MATH241; and must have completed a course in linear algebra.
**Restriction:** Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department.

**ENAE423 Vibration and Aeroelasticity (3 Credits)**
Dynamic response of single and multiple degrees of freedom systems, finite element modeling, wing divergence, aileron reversal, wing and panel flutter.
**Prerequisite:** ENAE324.
**Restriction:** Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department.

**ENAE425 Mechanics of Composite Structures (3 Credits)**
Introduction to structures composed of composite materials and their applications in aerospace. In particular, filamentary composite materials are studied. Material types and fabrication techniques, material properties, micromechanics, anisotropic elasticity, introduction to failure concepts.
**Prerequisite:** MATH246, ENAE324, ENES220, and MATH241.

**ENAE432 Control of Aerospace Systems (3 Credits)**
An introduction to the feedback control of dynamic systems. Laplace transforms and transfer function techniques; frequency response and Bode diagrams. Stability analysis via root locus and Nyquist techniques. Performance specifications in time and frequency domains, and design of compensation strategies to meet performance goals.
**Prerequisite:** Minimum grade of C- in ENAE301 and ENAE283.
**Restriction:** Junior standing or higher; and must be in Engineering: Aerospace program.

**ENAE441 Space Navigation and Guidance (3 Credits)**
Principles of navigation. Celestial, radio, and inertial navigation schemes. Navigational and guidance requirements for orbital, planetary, and atmospheric entry missions. Fundamentals of communications and information theory. Link budgets, antennas and telemetry systems.
**Prerequisite:** ENAE404 and ENAE432.
**Restriction:** Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department.

**ENAE450 Robotics Programming (3 Credits)**
Introduces students to the Robot Operating System (ROS) as well as to many of the available tools commonly used in robotics. Lectures focus on theory and structure, whereas laboratory sections will focus on applications and implementations. Students learn how to create software and simulations, interface to sensors and actuators, and integrate control algorithms. The course works through exercises involving a number of autonomous robots (i.e., ground and air vehicles) that students will eventually use in their subsequent RAS minor courses. Topics include: ROS architecture, console commands, ROS packages, simulation environments, visualizations, autonomous navigation, manipulation, and robot vision.
**Prerequisite:** ENME480 or ENAE380.
**Restriction:** Must be in the Robotics and Autonomous Systems (RAS) minor; or permission of department.
**Additional Information:** Students in the Robotics and Autonomous Systems minor should take ENME480 as a prerequisite; Aerospace Engineering students not in the minor should take ENAE380.

**ENAE455 Aircraft Propulsion and Power (3 Credits)**
Thermodynamic cycle analysis, aerothermochemistry of fuels and propellants, operating principles of piston, turbojet, fanjet, and other variations of airbreathing aircraft power units.
**Prerequisite:** ENES232, ENAE414, and ENAE311.
**Restriction:** Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department.

**ENAE457 Space Propulsion and Power (3 Credits)**
Thermodynamic cycle analysis, aerothermochemistry of fuels and propellants, operating principles of rocket, ion, and other exoatmospheric power units.
**Prerequisite:** PHYS271, ENES232, PHYS270, and ENAE311.
**Restriction:** Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. And senior standing.

**ENAE464 Aerospace Engineering Laboratory (3 Credits)**
Application of fundamental measuring techniques to measurements in aerospace engineering. Includes experiments in aerodynamics, structures, propulsion, flight dynamics and astrodynamics. Correlation of theory with experimental results.
**Prerequisite:** ENAE324, ENAE362, ENAE311, and ENAE432.
**Restriction:** Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department.

**ENAE467 Advanced Space Propulsion and Power (3 Credits)**
Charged particle motion, drift mechanisms, plasma sheaths, creation of plasmas. Representative electrothermal, electrostatic, and electromagnetic propulsion technologies. Power production and direct-drive thrust generation using fusion as time permits.
**Prerequisite:** ENAE457.
**Jointly offered with:** ENAE667.
**Restriction:** Permission of Instructor.
**Credit Only Granted for:** ENAE488I, ENAE467, or ENAE667.
**Formerly:** ENAE488I.

**ENAE471 Aircraft Flight Testing (3 Credits)**
Provides basic instruction to aircraft flight testing and demonstrates need for systematic, well-proven technique to allow for accurate airplane performance. Concepts of aerodynamics, airplane performance, and stability and control. Emphasis on single-engine general aviation type aircraft.
**Prerequisite:** ENAE414.
**Corequisite:** ENAE403.
**Restriction:** Must be in Engineering: Aerospace program.

**ENAE472 Introduction to Hypersonics (3 Credits)**
Introduces students to the various key aspects of flight at hypersonic speeds. Critical aerodynamic phenomena to be covered includes the qualitative behavior of flow fields in the high-Mach-numberlimit, approximate methods for quantifying surface pressure, and estimates of viscous drag and heating. High-speed air-breathing propulsion systems will be discussed, including cycle analysis and performance metrics for propulsion, with a main emphasis onthe fundamentals of ramjet and scramjet engines. Key Guidance, Navigation and Control (GNC) concepts for various hypersonic vehicle types will also be introduced, including the design of appropriate flight trajectories and control algorithms to achieve mission goals. Finally, students will be provided with an overview of high-temperature materials, structures, and thermal protection systems.
**Prerequisite:** ENAE311 or enrolled in hypersonics graduate certificate program.
**Corequisite:** ENAE481 or ENAE483 (if not enrolled in hypersonics graduate certificate program).
**Restriction:** Students must be in the Hypersonic Graduate Certificate Program (code: Z165) or receive permission from the department.
**Credit Only Granted for:** ENAE488N or ENAE472.
**Formerly:** ENAE488N.

**ENAE481 Principles of Aircraft Design (3 Credits)**
Aircraft design principles blending both synthesis and analysis. The iterative nature of the design process. Applied aerodynamics. Elements of aircraft performance calculation and optimization. Design of aircraft including payload, crew and avionics provisions, propulsion selection and sizing, aerodynamic configuration optimization, mass properties, stability and control characteristics, and vehicle subsystems. Individual student projects in aircraft design.
**Prerequisite:** ENAE324, ENAE362, and ENAE432.
**Corequisite:** ENAE414.
**Restriction:** Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department.

**ENAE482 Aeronautical Systems Design (3 Credits)**
Senior capstone design course in the aeronautics track. Introduction of computerized methods for sizing and performance analysis. More comprehensive methods to predict weight, aerodynamics and propulsion system characteristics. Consideration in design disciplines such as vulnerability, maintainability, produceability, etc. Groups of students will complete, brief and report on a major design study to specific requirements.
**Prerequisite:** ENAE455, ENAE423, ENAE403, and ENAE481.
**Restriction:** Must be in Engineering: Aerospace program; and senior standing or higher.

**ENAE483 Principles of Space Systems Design (3 Credits)**
Principles of space systems analysis and vehicle design. Launch vehicle performance analysis and optimization. Design of vehicle systems including avionics, power, propulsion, life support, human factors, structures, actuator and mechanisms, and thermal control. Design processes and design synthesis. Individual student projects in vehicle design.
**Prerequisite:** ENAE404, ENAE324, ENAE362, and ENAE432.
**Restriction:** Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department.

**ENAE484 Space Systems Design (3 Credits)**
Senior capstone design course in the space track. Group preliminary design of a space system, including system and subsystem design, configuration control, costing, risk analysis, and programmatic development. Course also emphasizes written and oral engineering communications.
**Prerequisite:** ENAE423, ENAE483, ENAE441, and ENAE457.
**Restriction:** Must be in Engineering: Aerospace program.

**ENAE488 Topics in Aerospace Engineering (1-4 Credits)**
Technical elective taken with the permission of the student's advisor and instructor. Lecture and conference courses designed to extend the student's understanding of aerospace engineering. Current topics are emphasized.
**Prerequisite:** Permission of student's advisor required.
**Restriction:** Permission of instructor.

**ENAE499 Elective Research (3 Credits)**
Undergraduate research project and paper conducted under the direction of an aerospace engineering faculty member to be presented at a conference or competition.
**Prerequisite:** Permission from student's advisor required.
**Restriction:** Senior standing or higher; and must be in Engineering: Aerospace program; and permission of instructor; and permission of ENGR-Aerospace Engineering department.
**Repeatable to:** 6 credits if content differs.

# ENBC - Biocomputational Engineering

**ENBC301 Introduction to Biocomputational Engineering (1 Credit)**
Provides practical tools to help Biocomputational Engineering majors to think critically about their goals and career paths and to utilize their major to set their career trajectory.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in Biocomputational Engineering major.

**ENBC311 Python for Data Analysis (3 Credits)**
Provides an introduction to structured programming, computational methods, and data analysis techniques with the goal of building a foundation allowing students to confidently address problems in research and industry. Fundamentals of programming, algorithms, and simulation are covered from a general computer science perspective, while the applied data analysis and visualization portion makes use of the Python SciPy stack.
**Prerequisite:** Minimum grade of C- in MATH241; and minimum grade of C- in BIOE241 or approved prior study in Matlab.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Biocomputational Engineering major.
**Credit Only Granted for:** BIOE489A, BIOE442 or ENBC311.

**ENBC312 Object Oriented Programming in C++ (3 Credits)**
Provides a solid foundation for object-oriented programming using the C ++ programming language. It introduces fundamental conceptual tools and their implementation of object-oriented design and programming such as: object, type, class, implementation hiding, inheritance, parametric typing, function overloading, polymorphism, source code reusability, and object code reusability. Fundamental principles of object-oriented design and programming are stressed while covering the language details.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Biocomputational Engineering major.

**ENBC321 Machine Learning for Data Analysis (3 Credits)**
Instructs students in the fundamentals of machine learning methods through examples in the biological phenomenon and clinical data analysis. This course is designed to share knowledge of real-world data science and aid to learn complex machine learning theory, algorithms, and coding libraries in a simple way. Students will learn the machine learning theory, but they will also get hands-on practice building their models using programming tools such as Python and R.
**Prerequisite:** Minimum grade of C- in ENBC311 and ENBC332.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Biocomputational Engineering major.

**ENBC322 Algorithms (3 Credits)**
Presents an introduction to the techniques for designing efficient computer algorithms and analyzing their complexity using the Python programming language. Students will gain insight into principles and data-structures useful in algorithm design. General topics include asymptotics, sorting and searching, hashing, algorithm design techniques, graph algorithms, and dynamic programming.
**Prerequisite:** Minimum grade of C- in ENBC311.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Biocomputational Engineering major.
**Credit Only Granted for:** ENEB355 or ENBC322.

**ENBC331 Applied Linear Systems and Differential Equations (3 Credits)**
Applications of linear algebra and differential equations to bioengineering and biomolecular systems. Designed to instruct students to relate mathematical approaches in bioengineering to their physical systems. Examples will emphasize fluid mechanics, mass transfer, and physiological systems.
**Prerequisite:** Minimum grade of C- in MATH246; and minimum grade of C- in BIOE241 or approved prior study in Matlab.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Biocomputational Engineering major.
**Credit Only Granted for:** BIOE371 or ENBC331.

**ENBC332 Statistics, Data Analysis, and Data Visualization (3 Credits)**
Instructs students in the fundamentals of probability and statistics through examples in biological phenomenon and clinical data analysis. Data visualization strategies will also be covered.
**Prerequisite:** Minimum grade of C- in MATH246; and minimum grade of C- in BIOE241 or approved prior study in Matlab.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Biocomputational Engineering major.
**Credit Only Granted for:** BIOE372, ENBC332 or STAT464.

**ENBC341 Biomolecular Engineering Thermodynamics (3 Credits)**
A quantitative introduction to thermodynamic analysis of biomolecular systems. The basic laws of thermodynamics will be introduced and explained through a series of examples related to biomolecular systems.
**Prerequisite:** Minimum grade of C- in MATH246 and PHYS260.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Biocomputational Engineering major.
**Credit Only Granted for:** BIOE232, ENBC341 or CHBE301.

**ENBC342 Computational Fluid Dynamics and Mass Transfer (3 Credits)**
Principles and applications of fluid mechanics with a focus on bioengineering topics. Content includes conservation of mass, momentum, and energy, as well as the application of these fundamental relations to hydrostatics, control volume analysis, internal and external flow, and boundary layers. Applications to biological and bioengineering problems such as tissue engineering, bioprocessing, imaging, and drug delivery.
**Prerequisite:** Minimum grade of C- in ENBC341; and minimum grade of C- in BIOE241 or approved prior study in Matlab; and must have earned a minimum grade of C- or be concurrently enrolled in ENBC331.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Biocomputational Engineering major.
**Credit Only Granted for:** BIOE331 or ENBC342.

**ENBC351 Quantitative Molecular and Cellular Biology (3 Credits)**
Provides a quantitative analysis of the behavior of cellular and molecular systems. The focus will be the construction and application of mechanistic models of biomolecular interaction rate processes, which form the foundation of most biological functions. The course will also provide in-depth, practical exploration into data analysis of key bioengineering techniques.
**Prerequisite:** Minimum grade of C- in BSCI170 or BIOE120.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Biocomputational Engineering major.

**ENBC352 Molecular Techniques Laboratory (2 Credits)**
Provides students with the opportunity to learn how biology and engineering can synergistically contribute to our understanding of biological and biomedical problems. Students will gain hands-on experience through wet lab experiments in basic techniques relevant to bioengineering.
**Prerequisite:** Minimum grade of C- or concurrently enrolled in ENBC351.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Biocomputational Engineering major.

**ENBC353 Synthetic Biology (3 Credits)**
Introduces students to the scientific foundation and concepts driving the fast-paced field of synthetic biology. This course aims to apply engineering principles, measurement science, and modern molecular biology to increase understanding of complex biological systems and to develop novel applications that address global challenges in health, manufacturing, energy, agriculture, and the environment. Students will explore the principles and applications of the field via in-depth analysis. The course will also address the societal issues of synthetic biology, and briefly examine interests to regulate research in this area.
**Prerequisite:** Minimum grade of C- in BSCI170 or BIOE120.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Biocomputational Engineering major.
**Credit Only Granted for:** BIOE461 or ENBC353.

**ENBC399 Independent Study in Biocomputational Engineering (1-3 Credits)**
Independent Study
**Restriction:** Permission of the ENGR-Biocomputational Engineering program.
**Repeatable to:** 12 credits if content differs.

**ENBC403 Research Methods in Biological Data Mining (3 Credits)**
An introduction to the fundamentals of conducting research projects utilizing a general understanding of quantitative/qualitative research, clinical data analysis, and multiple examples of different research approaches in the biological phenomenon. The course includes an overview of design strategies to implement various data mining technologies.
**Prerequisite:** Minimum grade of C- or concurrently enrolled in ENBC311.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Biocomputational Engineering major.

**ENBC423 Applied Computer Vision (3 Credits)**
Introduction to the basics and modern deep learning models in the Artificial Intelligence field of computer vision. The course emphasizes applications of computer vision in medical imaging. Computer vision techniques will be demonstrated using software packages implementing bioimage informatics methods.
**Prerequisite:** Minimum grade of C- in ENBC311 and ENBC312.

**ENBC424 AI for Biocomputational Engineering (3 Credits)**
Introduces students to the basics and modern deep learning models in the Artificial Intelligence field applied to computer vision problems. The course will teach ResNet for image Classification/Regression, and U-Net for semantic segmentation. The course emphasizes applications of computer vision in medical imaging and cell biology, such as detecting brain tumor using semantic deep learning segmentation network and track dynamic measurements of live 3T3 cells through time using recurrent neural network. Computer vision techniques will be demonstrated using software packages implementing bio-image informatics methods, including ImageJ (FIJI), Python with Keras Tensorflow, Pytorch, and Matlab.
**Prerequisite:** Minimum grade of C- in ENBC423.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in Biocomputational Engineering major.

**ENBC425 Imaging and Image Processing (3 Credits)**
Instructs students in the fundamentals of biomedical imaging and image processing methods through the physical principles behind major medical imaging modalities, including X-Ray, Computed Tomography (CT), and magnetic resonance imaging (MRI). This course is designed to instruct students in mathematical tools for extracting information from images. There will be real-world assignments and images, which aid in learning complex theories, applications, and coding libraries in a simple way.
**Prerequisite:** Minimum grade of C- in ENBC332, ENBC311, and ENBC321.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in Biocomputational Engineering major.

**ENBC431 Finite Element Analysis (3 Credits)**
An introduction to the theory, programming and application of the finite element method that is used to solve problems in engineering analysis and design. Modeling, analysis, and design using the FEA software SolidWorks. The objective of the course is to teach the fundamentals of the finite element method with emphasis on the underlying theory, assumption, and modeling issues as well as providing hands-on experience using finite element software to model, analyze, and design systems.
**Prerequisite:** Minimum grade of C- in MATH246.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Biocomputational Engineering major.

**ENBC441 Computational Systems Biology (3 Credits)**
Introduces quantitative principles for studying biological systems using computational modeling and simulations. Topics include continuous modeling of systems using ordinary differential equations, discrete modeling using Boolean networks and Markov chains, probabilistic modeling through Bayesian networks, stochastic modeling via Monte Carlo and Brownian and molecular dynamics, model optimization, and parameter estimation. Simulation algorithms that implement these approaches will be introduced through MATLAB programming.
**Prerequisite:** ENBC351.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Biocomputational Engineering major.

**ENBC455 Bioinformatics Engineering (3 Credits)**
Introduces students to the core principles of bioinformatics while encouraging students to apply their programming skills to real-world biological problems. Students will learn to utilize Python to process data sets.
**Prerequisite:** ENBC311.
**Restriction:** Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Biocomputational Engineering major.

**ENBC491 Senior Capstone Design in Biocomputational Engineering (3 Credits)**
Senior design project in which students work collaboratively in a Capstone team on a biocomputational topic. Under the guidance of a Capstone mentor, students will set project goal(s), propose project design, identify methodology, implement solutions, evaluate project results, and iterate among these steps if needed. Students will present their completed biocomputational projects to the public in a poster session. To complement the project design and implementation, students will also learn pressing ethics and DEI concerns emerging in artificial intelligence (AI), and recognize ethical responsibilities in biocomputational tasks.
**Prerequisite:** Must have completed 18 credits in ENBC courses.

# ENCE - Engineering, Civil

**ENCE100 Introduction to Civil and Environmental Engineering (1 Credit)**
An overview of the department of Civil and Environment Engineering. Students are introduced to the undergraduate curriculum and will be exposed to other undergraduate and graduate students at various points in their program. The course blends panel presentations by seniors and graduate students, faculty and practitioners with a project and book review to be performed by the students.

**ENCE200 Civil Engineering Graphics for Design and Construction (3 Credits)**
Introduction to the basic principles and fundamentals of civil design, plan interpretation, and plan creation. Development of the knowledge and skills to analyze existing sites, environmental features, and characteristics used to develop a site properly. Introduction of the use of Computer-Aided Drafting (CAD) software in the context of civil and environmental engineering design and applications.
**Prerequisite:** ENES100, MATH141, and ENES102; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE201 Engineering Information Processing (3 Credits)**
Exploration of algorithms for solving problems in several important areas of numerical computing: roots of equations; matrix algebra and the systems of linear equations; function approximation, numerical differentiation and integration; and ordinary differential equations. Issues of solution accuracy, robustness, and efficiency are also considered. Numerical techniques are presented in the context of engineering applications, and example problems are solved using a variety of computer-based tools (primarily MATLAB).
**Prerequisite:** ENES220 and MATH241; and permission of ENGR-Civil & Environmental Engineering department.
**Corequisite:** MATH246.
**Credit Only Granted for:** ENCE201 or ENCE203.

**ENCE204 How Do Cities Work (3 Credits)**
Can we improve the way cities work? Are we equitably sharing the benefits and the burdens of living in a city? This course examines how cities work, and importantly, whether they work the same for everyone living in the city. We will explore the ways in which we provide city services and who is included or excluded from these services. We will examine how the city infrastructure serves a neighborhood's residents, with an eye toward how community forms. We will use first person accounts from policymakers, advocates, and community members to learn about the planning process for services and the tensions that can exist around access to healthcare, food and affordable housing. Each week we will study a new facet of the city, drawing on the writings of experts and your own journey through the city to better understand its infrastructure, asking how does it work, how does it connect to other infrastructure and whom does it primarily serve?

**ENCE205 Biology for Civil and Environmental Engineers (3 Credits)**
Introduction to the functions and interactions of biological systems in civil and environmental engineering systems in the context of societal issues. The course includes an introduction to biotechnological principles from a quantitative perspective, modern experimental techniques in biotechnology and methods of data analysis. Roles for civil and environmental engineers in society seen from a biotechnological perspective, and the role of biotechnology in civil and environmental engineering will be elucidated. The role of biotechnology in other engineering disciplines will also be discussed.
**Prerequisite:** MATH140 or equivalent.
**Restriction:** Must be in the Civil Engineering program; or permission of the Civil and Environmental Engineering Department.
**Credit Only Granted for:** BIOE120 or ENCE205.

**ENCE215 Engineering for Sustainability (3 Credits)**
Engineers have a key role to play in planning, designing, building, and ensuring a sustainable future. In this class, a problem-based approach is used to examine fundamentally-based analyses and approaches for engineering as sustainable society, with a focus on sustainable use of energy and materials, sustainable infrastructure solutions, atmospheric sustainability and sustainable water supply, and human population growth and resource consumption and its implications for sustainability.
**Prerequisite:** CHEM135; or students who have taken courses with comparable content may contact the department; and permission of ENGR-Civil & Environmental Engineering Department.

**ENCE300 Fundamentals of Engineering Materials (3 Credits)**
Behavior, physical, mechanical and chemical properties, design and performance of civil engineering materials, including aggregates, cement, concrete, asphalt binders and mixtures, plastics and geosynthetics, timber, metals and alloys. Modified and advanced highway materials (polymer and rubber modified mixtures, high performance concrete, composites, smart materials). Laboratory testing with hands-on experience on aggregates, Portland cement concrete, asphalt mixtures, timber and metals as per SUPERAVE, ACI design methods, and ASTM standards and specifications.
**Prerequisite:** ENES220; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE302 Probability and Statistics for Civil and Environmental Engineers (3 Credits)**
Statistics is the science of data. Civil Engineers must often make decisions based on incomplete, variable or uncertain information. In addition, modern methods of design and analysis need to account for variability in natural, engineered and human systems. After successful completion of this class, a student should have facility and familiarity with established basic techniques for managing data, modeling variability and uncertainty, communicating about data and decisions, and supporting or defending a decision or judgment based on uncertain or incomplete data.
**Prerequisite:** MATH246 and ENCE201; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE305 Fundamentals of Engineering Fluids (3 Credits)**
The theoretical bases for fluid statics and dynamics, including the conservation of mass, energy and momentum. Modeling of hydraulic systems are introduced. Emphasis on pipe flow and open-channel hydraulics, with real-world applications.
**Prerequisite:** ENES220, PHYS260, and PHYS261; and permission of ENGR-Civil & Environmental Engineering department.
**Credit Only Granted for:** BIOE331, ENCE305, ENFP300, or ENME331.

**ENCE310 Introduction to Environmental Engineering (3 Credits)**
Introduction to the physical, chemical and biological systems relating to the quality of water, land and air environments. Fundamental principles will be emphasized, current environmental pollution problems will be examined and methods of pollution abatement discussed.
**Prerequisite:** PHYS260 and ENCE215; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE320 Introduction to Project Management (3 Credits)**
Principles and techniques of managing engineering projects from the initiation, through planning, execution, monitoring & control, then finally closeout.
**Prerequisite:** Permission of ENGR-Civil & Environmental Engineering department.
**Restriction:** Must be in a major in ENGR-A James Clark School of Engineering.
**Credit Only Granted for:** BMGT485, ENCE320, ENCE325, INST408O or INST453.

**ENCE325 Introduction to Construction Project Management (3 Credits)**
Learn the basic topics in sourcing, planning, financing, designing, contracting, constructing and operating buildings and other facilities in the built infrastructure. Topics include construction economics, design constructability reviews, construction process planning, contracts and procurement strategies, project scheduling and resource utilization, site layout planning, project cost and quality controls, temporary structures, environmental sustainability, project handover procedures, facility operation and management, IT-based tools for construction project and resource management.
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering; or must be in a major in ARCH-School of Architecture, Planning, & Preservation; or must be in the Construction Project Management minor. And permission of ENGR-Civil & Environmental Engineering department.
**Credit Only Granted for:** BMGT485, ENCE320, ENCE325, INST408O or INST453.

**ENCE340 Fundamentals of Geotechnical Engineering (3 Credits)**
Introductory study of soils in civil engineering. Soil origin, phase relationships and classification schemes. Soil hydraulics: capillary, effective stress, permeability and seepage considerations. Basic stress distribution theories and soil consolidation-settlement analysis. Integration of shear strength evaluation with slope stability analysis. If time permits, topics such as applications in geoenvironmental engineering will be covered.
**Prerequisite:** ENES220; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE353 Introduction to Structural Analysis (3 Credits)**
The basic tools of structural analysis and design. Design loads. Equilibrium of external and internal forces. Shear and moment diagrams in beams and frames. Truss analysis. Influence line diagrams. The slope-deflection method and method of consistent deformation. Matrix stiffness methods for beams, frames and trusses.
**Prerequisite:** Permission of ENGR-Civil & Environmental Engineering department; and (MATH246 and ENES220).

**ENCE360 Analysis of Civil Engineering Systems (3 Credits)**
Introduction to systems approach and systems analysis in civil and environmental engineering. Introduction to systems analysis tools that facilitate engineering management decision making including optimization and computer simulation. Introduction to linear and nonlinear mathematical optimization including linear and integer programming, elementary nonlinear programming and dynamic programming.
**Prerequisite:** ENCE201 and MATH140; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE370 Introduction to Transportation Engineering and Planning (3 Credits)**
Engineering problems of transportation by highways, airways, pipelines, waterways, and railways. Transportation modes and technologies, vehicle dynamics, basic facility design, traffic stream models, capacity analysis, transportation planning, evaluation and choice, and network analysis.
**Prerequisite:** ENCE201, PHYS260, and PHYS261; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.
**Restriction:** Junior standing or higher.

**ENCE398 Honors Research Project (1-3 Credits)**

**ENCE402 Simulation and Design of Experiments for Engineers (3 Credits)**
Review of statistics and hypothesis testing, sample design and design of experiments, generation of discrete and continuous distributions and their applications. Introduction of simulation languages and simulation of discrete and continuous engineering systems. Output analysis, model validation and sensitivity and reliability analysis.
**Prerequisite:** ENCE302; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE411 Environmental Engineering Science (3 Credits)**
Introduces the analytical techniques available to assess performance of engineering processes as they relate to water, soil, and air treatment and quality. The basic principles of environmental management, economics of waste treatment, by-product reutilization, and energy cycles are introduced and discussed. Alternative technologies are introduced and evaluated mostly by assessing their potential to reduce waste, minimize energy use, and promote sustainability. Students' activities include, a weekly lab to provide hands-on experience with environmental quality measurements and treatment techniques; on-site visits to regional industries that undertake sustainable practices; and a final research project where experimental design and laboratory techniques are used to assess interactions between technologies and natural systems and their potential for reducing environmental impacts.
**Prerequisite:** ENCE310; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE412 Environmental Engineering Unit Operations (3 Credits)**
Examination of unit operations and processes encountered in environmental engineering field. Fundamental principles learned from previous classes will be applied into the design and operation of unit operations and processes, particularly in the area of water and wastewater treatment. Similar processes will be applied to air pollution control, solid waste disposal and hazardous waste treatment.
**Prerequisite:** ENCE305 and ENCE310; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE420 Selection and Utilization of Construction Equipment (3 Credits)**
Learn to evaluate and select construction equipment with a focus on mechanized equipment for earthwork and building construction.Learn about the parties involved in procurement, operation and maintenance, and how to cost-effectively plan, select, and utilize equipment for earthmoving, paving, formwork, trenching, rock excavation, tunneling, site preparation, and steel and concrete construction. Explore trends in equipment design, construction automation, and robotics.
**Prerequisite:** Permission of ENGR-Civil & Environmental Engineering department.
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering; or must be in the Construction Project Management minor.

**ENCE421 Legal Aspects of Architectural and Engineering Practice (3 Credits)**
Learn the basic structure of the US legal system and court procedures and legal principles relevant to architectural and engineering design and construction contracts including principles of ethical, legal and professional conduct of engineers and architects.Topics include: contracts for design and construction, sales and warranties, torts and product liability, business agency and government agencies, professional liability of architects and engineers, labor laws, expert testimony, mediation and arbitration, tangible property including real estate, intellectual property including trademarks, patents and copyrights, insurance and sureties.
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering; or must be in the Construction Project Management minor; or must be in the Project Management Minor. And permission of ENGR-Civil & Environmental Engineering department.

**ENCE422 Project Cost Accounting and Economics (3 Credits)**
Learn: the fundamentals of accounting; project cost accounting principles as they apply to project management; project cost accounting; and the fundamentals of engineering economics.Topics include: project feasibility analysis; reading and analyzing financial statements; cash management; cash flow analysis; depreciation and taxes; and impact on profitability; the principles of activity based costing; net present value analysis; the framework for project performance measurement, cost performance indices, and earned value analysis.
**Prerequisite:** Permission of ENGR-Civil & Environmental Engineering department.
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering; or must be in the Construction Project Management Minor; or must be in the Project Management Minor.

**ENCE423 Project Planning, Estimating & Scheduling (3 Credits)**
Learn the fundamentals of project planning, estimating, and scheduling. Understand the concepts of planning; to reduce uncertainty, improve efficiency of the operation, to set and meet objectives, and to provide a basis for monitoring and controlling the work. Be introduced to: the concepts of resource definition, assignment and management, and; the basics of project estimating (pricing) methods including global pricing strategies, types of estimates, pricing processes, overhead and profit, and project financing.Learn the basics of project scheduling including; bar charts, network-based methodologies, and linear scheduling techniques. Emphasis is placed on Critical Path Method (CPM) scheduling, a network based methodology. Be exposed to the use of scheduling software and will actually develop a CPM schedule for an actual construction project as part of a semester project.
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering; or must be in the Construction Project Management Minor; or must be in the Project Management Minor. And permission of ENGR-Civil & Environmental Engineering department.

**ENCE424 Communication for Project Managers (3 Credits)**
Learn the fundamentals of communications for project managers. Emphasis is on interpersonal and group communications; through voice, electronic, and written messages; project cycle and reports and presentations during this cycle; and communications for employment.
**Prerequisite:** Permission of ENGR-Civil & Environmental Engineering department.
**Jointly offered with:** ENCE614.
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering; or must be in the Construction Project Management minor; or must be in the Project Management minor.
**Credit Only Granted for:** ENCE424 or ENCE614.

**ENCE426 Construction Documentation and BIM Applications in Engineering and Construction (3 Credits)**
Learn the basics of construction documentation methods, with particular emphasis on Building Information Modeling (BIM). Topics include: the fundamentals of assembly, coordination, and maintenance of construction documents and implementation of BIM techniques in the design and construction processes, and; a review of Autodesk, Revit, and Navisworks and other leading BIM software. Lectures from project management faculty supplemented by guest lecturers from the construction industry.
**Prerequisite:** Permission of ENGR-Civil & Environmental Engineering department.
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering; or must be in the Construction Project Management Minor; or must be in the Project Management Minor.

**ENCE430 Introduction to Infrastructure and Resilience (3 Credits)**
Develops system-level skills for the planning, design, maintenance, and operation of resilient infrastructure systems. Through this course, we will discuss a variety of infrastructure systems, both public and private, and their role in communities before and after disasters. The themes of the course will be grounded in the four phases of emergency management (mitigation, preparedness, response, and recovery) and the role that infrastructure plays in each. Through these applications areas, we will study a variety of conceptual, analytical, and computational models that support informed decision-making for these systems under uncertainty.
**Prerequisite:** ENCE302; or students who have taken courses with comparable content may contact the department.
**Corequisite:** ENCE360; or students who have taken courses with comparable content may contact the department. Jointly offered with ENCE632.
**Credit Only Granted for:** ENCE632, ENCE688U, ENCE430 or ENCE489U.
**Formerly:** ENCE489U.

**ENCE431 Hydrologic Engineering (3 Credits)**
An introduction to basic principles of hydrologic science including the hydrologic cycle, rainfall, surface runoff and streamflow. Special emphasis is placed on hydrologic engineering design of stormwater management and flood control facilities. Design projects are used to illustrate design practices.
**Prerequisite:** ENCE305; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE432 Ground Water Hydrology (3 Credits)**
Concepts related to the development of the ground water resources, hydrology, hydrodynamics of flow through porous media, hydraulics of wells and basin-wide ground water development. Fundamentals of ground water pollution are introduced.
**Prerequisite:** ENCE305; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE441 Foundation Design (3 Credits)**
Critical review of classical lateral earth pressure theories, analysis of retaining walls and reinforced earth walls, subsurface explorations, bearing capacity and settlement of shallow foundations, design of deep foundations that includes both pile foundations and drilled shafts.
**Prerequisite:** ENCE340; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE444 Experimental Methods in Geotechnical Structural Engineering (3 Credits)**
In the geotechnical engineering part of the course, major soils testing and their interpretation including classification, compaction, strength, and compressibility will be undertaken. The structural engineering part of this course covers test planning, loading apparatus, instrumentation, data acquisition and data analysis, as well as basic aspects of structural testing techniques and shake-table test.
**Prerequisite:** ENCE353 and ENCE340; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE447 Pavement Engineering (3 Credits)**
Fundamental principles underlying the design, construction, maintenance and repair, and management of highway and airfield pavement systems. Pavement performance (functional/structural; evaluation); pavement mechanics (multi-layered elastic theory; slab theory); pavement materials (properties and characterization); environmental effects; current rigid and flexible design methods (new/rehabilitation); construction (new construction; maintenance/repair; rehabilitation); economic evaluation; pavement management.
**Prerequisite:** ENCE340; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE453 Computer-Aided Structural Analysis (3 Credits)**
Computer-aided analysis of structural systems. Unified matrix formulation of stiffness and flexibility methods. Slope deflection method. Evaluation of truss, frame, and grid systems. Non-prismatic and curved elements. Error analysis and determination of ill-conditions. Introduction to finite element methods; formulation of simple two-dimensional elements. In laboratory, use and development of CAD software.
**Prerequisite:** ENCE353; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE454 Design of Concrete Structures (3 Credits)**
Combined bending and compression, development and anchorage of reinforcement, deflections, design of slabs including one-way and two-way, design of footings, retaining walls, introduction to prestressed concrete, design of multi-story buildings.
**Prerequisite:** ENCE353; and permission of ENGR-Civil & Environmental Engineering department.
**Formerly:** ENCE451.

**ENCE455 Design of Steel Structures (3 Credits)**
Behavior and design of members subjected to fatigue, and combined bending and compression; plate girders, composite beams, open-web joists and connections. Methods of allowable stress design, and load and resistance factor design. Elements of plastic analysis and design. Framing systems and loads for industrial buildings and bridges.
**Prerequisite:** ENCE353; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE465 Civil and Environmental Engineering Design I (1 Credit)**
Provides students an opportunity to develop their skills in project scoping and the development of design proposals. The fundamental concepts are taught using analytical and computational methods, which are necessary for designing and analyzing the sustainability of various engineering processes and technologies. The course provides the methods and skills for understanding the human-environment-infrastructure interactions needed to develop a design proposal.
**Prerequisite:** Permission of the ENGR-Civil & Environmental Engineering Department.

**ENCE466 Design of Civil Engineering Systems (3 Credits)**
A major civil engineering design experience that emphasizes development of student creativity, development and use of design methodologies, evaluation of alternate solutions, feasibility considerations, and detailed system descriptions. Realistic design constraints including economic factors, safety, aesthetics, and reliability will be imposed. Students will work in design project groups and be required to exercise oral and written communication skills.
**Prerequisite:** Permission of ENGR-Civil & Environmental Engineering department.
**Restriction:** Senior standing.
**Additional Information:** Must be taken in the semester in which the student graduates.

**ENCE467 Civil and Environmental Engineering Design II (2 Credits)**
This experiential course provides structured and unstructured time for groupwork as part of the senior capstone design course sequence. The course builds on skills acquired throughout a student's academic career extending a project defined and scoped in ENCE465. The objective of this course is to provide students with hand's on experience similar to the experience encountered by new engineers working in professional engineering and construction practice. The course offers students an opportunity to develop the leadership and groupwork skills needed to meet professional expectations.
**Prerequisite:** ENCE465; and must have completed or be concurrently enrolled in ENCE302 and ENCE305.
**Restriction:** Permission of the ENGR-Civil & Environmental Engineering Department.

**ENCE470 Highway Engineering (3 Credits)**
Highway location and design, highway engineering economics, traffic engineering, traffic measurement devices and technologies. Includes discussion of technological advances in traffic flow and capacity, such as signal systems, corridor control, automatic driver information, incident detection and autonomous vehicle operation.
**Prerequisite:** ENCE302 and ENCE370; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE472 Transportation Engineering (3 Credits)**
Transportation engineering concepts including transportation systems analysis, airport systems, airline and airport operations, marine transportation and urban public transportation systems.
**Prerequisite:** ENCE302 and ENCE370; and permission of ENGR-Civil & Environmental Engineering department.

**ENCE488 Senior Thesis (3 Credits)**
Advanced study in civil engineering problems with special emphasis on mathematical modeling and experimental methods.
**Prerequisite:** Permission of ENGR-Civil & Environmental Engineering department.
**Restriction:** Senior standing.

**ENCE489 Special Problems in Civil Engineering (1-4 Credits)**
A course arranged to meet the needs of exceptionally well prepared students for study in a particular field of civil engineering.
**Prerequisite:** Permission of ENGR-Civil & Environmental Engineering department.
**Restriction:** Senior standing.
**Repeatable to:** 9 credits if content differs.

# ENEB - Cyber-Physical Systems Engineering

**ENEB302 Analog Circuits (4 Credits)**
Foundations of circuits, focusing on applications including signal amplification, power amplification, instrumentation and filters. Fundamental concepts of analog circuits including analysis methods in time and complex domains, with emphasis on circuit topologies relevant in embedded systems. Intensive application of simulations and hands-on laboratory exercises.
**Prerequisite:** Minimum grade of C- in PHYS260 and PHYS261; and 1 course with a minimum grade of C- from (MATH246, MATH241, MATH240); and permission from the Cyber-Physical Systems Engineering program required.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.

**ENEB304 Microelectronics and Sensors (3 Credits)**
An overview of basic Internet of Things (IOT) architecture, core IOT hardware enablers, and IOT sensors and their implementation. This course covers commonly used analog amplifier designs and biasing, as well as characterization in the frequency and time domains. In addition, this course discusses the physical principles in RF communications as it relates to wireless personal and local networks (WPAN/WLAN) and short-range communication systems.
**Prerequisite:** Minimum grade of C- in ENEB302; and permission from the Cyber-Physical Systems Engineering program required.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.

**ENEB340 Intermediate Programming Concepts and Applications for Embedded Systems (3 Credits)**
Principles of programming for embedded systems development. Includes principles of software development in Unix, C and other high level languages, input/output, data types and variables, operators and expressions, program selection, repetition, functions, arrays, strings, introduction to algorithms, software projects, debugging, documentation. Includes hands-on applications in microprocessor environments.
**Prerequisite:** Completion of approved introductory programming course with a minimum grade of a "C-"; and permission of the Cyber-Physical Systems Engineering program required.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.

**ENEB341 Introduction to Internet of Things (3 Credits)**
An introduction to the foundations of Internet of Things (IoT), including IoT devices, communications, connection considerations, back-end services/applications, and business models. This course looks at the IoTs as the general theme of physical/real-world things becoming increasingly visible and actionable via Internet and Web technologies. It also covers networking protocols and gateways, security and privacy, data analytics and cloud computing platforms.
**Prerequisite:** Permission from the Cyber-Physical Systems Engineering program.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.

**ENEB344 Digital Logic Design for Embedded Systems (4 Credits)**
Hands on approach on foundations of digital logic for embedded systems applications; including input/output, logic gates, Karnaugh maps, latches, flip-flops and state-machines. This course also covers design and analysis of synchronous sequential systems, implementation with PLA's, multiplexers, decoders, encoders, binary arithmetic units such as adders and subtractors, conversions between decimal and arbitrary radix numbers, especially octal, hexadecimal, and binary representations, radix and diminished radix arithmetic, and character codes.
**Corequisite:** ENEB340; and permission from the Cyber-Physical Systems Engineering program.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.

**ENEB345 Probability & Statistical Inference (3 Credits)**
This is a foundational course on probability and statistics for data science and connected embedded systems. This covers basic statistics and probability theory, including random variables, standard distributions, moments, law of large numbers and central limit theorem, sampling methods, estimation of parameters, testing of hypotheses. The course also includes the mathematical theory of randomness, and applications to big data analysis and analysis in the presence of uncertainty, and applications to machine learning algorithms.
**Prerequisite:** MATH141.
**Restriction:** Must be in the Embedded Systems & Internet of Things program; and must receive permission from the Embedded Systems & Internet of Things program.

**ENEB346 Linear Algebra for Machine Learning Applications (3 Credits)**
Foundations of linear algebra for machine learning and data science applications with emphasis on implementing machine learning data science algorithms in a computer programming environment with linear algebra software tools and libraries as this course aims to provide a hands-on experience and learning environment for students. Students will learn the fundamental concepts in linear algebra that are directly relevant to machine learning and big data modeling and computations. These include vector and matrix operations, determinants, factorization methods, principal component analysis, eigenvalues, and singular value decomposition.
**Prerequisite:** MATH140.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program and must receive permission from the Cyber-Physical Systems Engineering program.

**ENEB352 Introduction to Networks and Protocols (3 Credits)**
An introduction to the principles of computer networking and covers the architecture and operation of the TCP/IP protocol stack. Topics will include fundamental networking concepts, the layers of the TCP/IP protocol stack, the packet structure and operation of each layer with detailed discussion on reliable data transfer, flow control, congestion control, routing algorithms, error detection, Local Area Networks (LANs), and multiple access protocols. The course will also cover wireless protocols relevant to Internet of Things (IoT) such as WLAN (IEEE 802.11), Zigbee (IEEE 802.15.4), and Bluetooth as well as some popular IoT application-layer and network-layer protocols including CoAP, AMQP, MQTT, XMPP and 6LoWPAN. As a part of the course work, the students will attend lab sessions where they will learn how to capture and analyze network traffic, how to configure networking functions on Linux systems, and how to operate and configure routers using Juniper Networks devices in a real-world lab environment.
**Prerequisite:** Minimum grade of C- in ENEB341; and permission from the Cyber-Physical Systems Engineering program.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.

**ENEB353 Computer Organization for Embedded Systems (3 Credits)**
Overview of the basic principles of computer organization and design with emphasis on low resource microcontrollers common in IoT applications. The topics include assembly and machine instructions, data-path and controller design, pipelining and memory hierarchy.
**Prerequisite:** Minimum grade of C- in ENEB344 and ENEB354; and permission from the Cyber-Physical Systems Engineering program.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.

**ENEB354 Discrete Mathematics for Information Technology (3 Credits)**
Foundations of discrete mathematics for information technology and embedded computing. Topics include sets, relations, functions and algorithms, proof techniques and induction, number theory, counting and combinatorics, and Graph theory.
**Prerequisite:** Minimum grade of C- in MATH141.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.

**ENEB355 Algorithms in Python (3 Credits)**
A study of fundamental algorithmic problem-solving techniques in Python for today's large-scale computer systems as well as microcontrollers. Algorithms are instructions for solving problems and data structures are strategies for organizing information on computers. Efficient algorithms require appropriate data structures, and vice versa. Students will learn about the algorithms and data structures that form the building blocks of Python programming language. Student will also learn to analyze the cost of algorithms, according to how their running time or space requirements grows as data size grows.
**Prerequisite:** Minimum grade of C- in ENEB340 and ENEB354; and permission from the Cyber-Physical Systems Engineering program.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.
**Credit Only Granted for:** ENEB355 or ENBC322.

**ENEB408 Capstone Design Lab (3 Credits)**
This course is the first of a two-semester sequence of capstone design laboratory experiences required for Cyber-Physical Systems Engineering students. Students will learn the principles of design, project planning, and project management. They will develop an ability to apply engineering solutions considering public health, safety, and welfare. Students will develop a consciousness of ethical and professional responsibilities and recognition of global, cultural, social, environmental, and economic factors in the design process. Students will also develop an ability to communicate in written and oral forms and to function effectively on a team. Projects will involve hardware, including a combination of off-the-shelf and custom-made components supported by hardware descriptive language software. The projects meet specific design challenges with applications in industry, healthcare, transportation, environmental sensing, cyber-security, and machine learning.
**Prerequisite:** Minimum grade of C- in all required 300-level ENEB courses.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program; and must receive permission from the Cyber-Physical Systems Engineering program.
**Repeatable to:** 6 credits.

**ENEB443 Hardware/Software Security for Embedded Systems (3 Credits)**
This course will provide an in-depth understanding of systems level software and hardware in designing industry-standard secured embedded systems. It aims to provide a comprehensive systems view of security, including hardware, platform software such as operating systems and integrated development environments, software development process, data protection protocols, and some aspects of cryptography. To goal is to expose students on how to develop embedded software and properly utilize platform components to ensure the highest levels of security.
**Prerequisite:** Permission from the Cyber-Physical Systems Engineering program; and minimum grade of C- in ENEB454.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.

**ENEB444 Operating Systems for Embedded Systems (3 Credits)**
Theory, design, implementation and analysis of low-resource computer operating systems for IoT applications. Through classroom lectures, homework, and projects, students learn the fundamentals of concurrency, process management, interprocess communication and synchronization, job scheduling algorithms, memory management, input-output devices, file systems, and real-time operating systems. Optional topics may include communications protocols and computer security.
**Prerequisite:** Minimum grade of C- in ENEB340 and ENEB344; and permission from the Cyber-Physical Systems Engineering program.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.

**ENEB451 Network Security (3 Credits)**
The foundations of modern cryptography including IoT security aspects, IoT features leading to security issues, as well as design considerations. Various cryptographic algorithms are discussed including the lightweight cryptography used in IoT applications. We will focus on the technology advances, industrial standards, and law enforcement that have been or have to be made to establish trust in four key areas to establish the trust in computing: security, privacy, reliability, and business integrity. Students will implement cryptographic algorithms using industry-standard tools and programming languages. Furthermore, students will analyze various encryption algorithms using cryptanalysis tools.
**Prerequisite:** Minimum grade of C- in ENEB352.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program and must receive permission from the Cyber-Physical Systems Engineering program.

**ENEB452 Advanced Software for Connected Embedded Systems (3 Credits)**
Hardware and software foundations, evaluations and validation, application mapping, optimization and testing of cyber-physical systems, namely, embedded systems and communication technologies.
**Prerequisite:** Minimum grade of C- in ENEB454; and permission from the Cyber-Physical Systems Engineering program.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program; and senior standing.

**ENEB453 Web-Based Application Development (3 Credits)**
Introduction to cloud computing, computer programming in the context of developing full-featured dynamic websites. Uses a problem-solving approach to teach basics of program design and implementation using JavaScript; relates these skills to the creation of dynamic websites; then explores both the potential and limits of web-based information sources for use in research. This course provides a practical introduction to full-stack web development using PHP and JavaScript. The course will start with HTML/CSS/JavaScript to cover the client-side of applications. Then, it will move on to the server-side with PHP and integrating with a MySQL database to create a complete web application.
**Prerequisite:** ENEB340 and ENEB341.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program; and permission of the Cyber-Physical Systems Engineering program.

**ENEB454 Embedded Systems (3 Credits)**
This course will provide students with the essential knowledge base that will enable them to tackle complex problems encountered in embedded systems design. The course will provide an overview of associated hardware components and software methodologies as well as the tools used in the development of modern embedded systems. Student will be exposed to the theoretical foundations which will be reinforced with carefully selected hands-on laboratory exercises, thereby getting a sense of how the theoretical concepts connect with the real-world embedded systems applications.
**Prerequisite:** Minimum grade of C- in ENEB353; and permission from the Cyber-Physical Systems Engineering program.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.

**ENEB455 Advanced FPGA System Design using Verilog for Embedded Systems (3 Credits)**
A project-oriented course on digital system design using Verilog hardware description language (HDL) in an industry-standard design environment appropriate for embedded systems. Students will implement real-world designs in field programmable gate arrays (FPGAs) as well as test and optimize the FPGA. Students will also work in teams on multiple, medium-scale digital system design projects and make oral presentations and written reports.
**Prerequisite:** Minimum grade of C- in ENEB344 and ENEB340; and permission from the Cyber-Physical Systems Engineering program.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.

**ENEB456 Machine Learning Tools (3 Credits)**
A broad introduction to machine learning and statistical pattern recognition tools. The course will teach students to model existing data and to forecast future behaviors, outcomes, and trends. It will be taught using the Azure Machine Learning Studio that provides an integrated, end-to-end data science and advanced analytics solution. It will enable students to prepare data, develop experiments, and deploy models at cloud scale. Topics include: supervised learning (Bayesian learning and classifier, parametric/non-parameteric learning, discriminant functions, support vector machines, neural networks, deep learning networks); unsupervised learning (clustering, dimensionality reduction, auto-encoders). The course will also discuss recent applications of machine learning, such as computer vision, data mining, autonomous navigation, and speech recognition. Hands-on: implementation of Tensorflow Algorithm on TPU board.
**Prerequisite:** ENEB345 and ENEB346.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.

**ENEB457 Foundations of Databases for Web Applications (3 Credits)**
An introduction to database systems and its applications to the Internet. It develops the database approach as a means to model the real world. The course will cover the fundamentals of the relational model, structured query language (SQL), data modeling, and database administration. This will cover an in-depth coverage of the relational model, logical database design, query languages, and other DB concepts including query optimization, concurrency control, transaction management, and log based crash recovery. In addition, students will be exposed to web-based database processing, data warehouse structures and fundamental concepts of nonrelational structured data storage (Big Data). Concepts will be illustrated with well-known Database Management System (DBMS) products such as MS Access, MS SQL Developer, Oracle Database XE, and MySQL Community Server.
**Prerequisite:** Minimum grade of C- in ENEB345, ENEB352, and ENEB355; and permission from the Cyber-Physical Systems Engineering program.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.

**ENEB499 Senior Research Projects in Embedded Systems & Internet of Things (1-5 Credits)**
Provides students in the Cyber-Physical Systems Engineering program with an opportunity to engage in independent research projects on advanced embedded systems topics. Projects are selected by students and supervised by faculty and other qualified mentors. While students may be required to acquire new skills or information in the course of completing an ENEB499 project, the focus is to conduct an independent investigation of a technical theme by the student.
**Prerequisite:** Permission of the Cyber-Physical Systems Engineering program.
**Restriction:** Must be in the Cyber-Physical Systems Engineering program.
**Repeatable to:** 5 credits if content differs.

# ENEE - Electrical & Computer Engineering

**ENEE101 Introduction to Electrical & Computer Engineering (3 Credits)**
An exploration of topics within Electrical & Computer Engineering (ECE). Students will be introduced to key elements of both the Electrical Engineering and Computer Engineering curriculum, including: circuits, computing systems and software, communications and controls, electrodynamics and waves, microelectronics, signal processing, and power systems.
**Corequisite:** MATH140. And corequisite: ENEE140 or CMSC131; or a score of 5 on the A Java AP exam; or a score of 4 or 5 on the AB Java AP exam; or satisfactory performance on the department's placement exam.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer) ; and students cannot enroll in ENEE101 and ENES100 in the same semester.

**ENEE131 Technology Choices (3 Credits)**
An exploration of the positive and negative effects of technology on society, via diverse criteria to assess the relative well being of individuals and society; an examination of how society can help shape the future of technology and the tools that can be used to make wise technology choices.

**ENEE140 Introduction to Programming Concepts for Engineers (2 Credits)**
Introduction to the programming environment: editing, compiling, UNIX, data types and variable scope; program selection, formatted/unformatted input/output, repetition, functions, arrays and strings.
**Prerequisite:** Permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in Engineering: Electrical program; or must be in Engineering: Materials Science program.

**ENEE150 Intermediate Programming Concepts for Engineers (3 Credits)**
Advanced programming concepts: coding conventions and style; pointers; dynamic memory allocation and data structures; linked lists; graphs; abstract data types; object-oriented design. There will be team-based software projects and group presentations.
**Prerequisite:** Permission of ENGR-Electrical & Computer Engineering department. And ENEE140 or CMSC131; or score of 5 on the A Java AP exam; or score of 4 or 5 on the AB Java AP exam; or satisfactory performance on the department's placement exam.
**Corequisite:** MATH140.
**Restriction:** Must be in Engineering: Electrical program.

**ENEE200 Technology and Consequences: Engineering, Ethics, and Humanity (3 Credits)**
What makes a technology socially responsible? At UMD, the Fearless Ideas campaign asks us to aim our enthusiasm for technology at big real problems. At the same time, we are coming to appreciate the increasingly complex nature of technological systems as they become integrated into all forms of infrastructure, we realize they may be unpredictable, interdependent on social and biological systems, and have unintended consequences. In this midst of this complexity, people make decisions with far reaching impacts. How then do we follow our passion for technology and innovation but also stay skeptical in a way that allows us to consider the potential and shortcomings of technology? Designed for both engineering and non-engineering students wishing to explore and assess the impact of engineering technology on society and the role of society in generating that technology.
**Credit Only Granted for:** ENEE200 or ENES200.

**ENEE205 Electric Circuits (4 Credits)**
Design, analysis, simulation, construction and evaluation of electric circuits. Terminal Relationships. Kirchoff's laws. DC and AC steady state analysis. Node and mesh methods. Thevenin and Norton equivalent circuits. Transient behavior of first- and second-order circuits. Frequency response and transfer functions. Ideal op-amp circuits. Diode and transistor circuits.
**Prerequisite:** Minimum grade of C- in PHYS260; and minimum grade of C- in PHYS261; and permission of ENGR-Electrical & Computer Engineering department.
**Corequisite:** MATH246 or ENEE290.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).

**ENEE222 Elements of Discrete Signal Analysis (4 Credits)**
Discrete- and continuous-time signals, sampling of sinusoids. Discrete Fourier transform: properties and applications. Periodic signals and Fourier series. Discrete-time linear filters in time and frequency domains. Numerical applications and implementation of algorithms (using MATLAB).
**Prerequisite:** Minimum grade of C- in ENEE140; or minimum grade of C- in CMSC131; and permission of ENGR- Electrical & Computer Engineering department.
**Corequisite:** ENEE290; or coursework approved by the department.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer).

**ENEE244 Digital Logic Design (3 Credits)**
The design and analysis of combinational and synchronous sequential systems comprising digital logic gates and flip-flop memory devices; underlying tools such as switching and Boolean algebras and Karnaugh map simplification of gate networks; design and use of decoders, multiplexers, encoders, adders, registers, counters, sequence recognizers, programmable logic arrays (PLAs), read-only memories (ROMS, PROMS), and similar devices. Arbitrary radix conversion.
**Prerequisite:** Must have completed or be concurrently enrolled in CMSC132 or ENEE150; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Sophomore standing or higher; and must be in one of the following programs (Engineering: Computer; Engineering: Electrical).

**ENEE245 Digital Circuits and Systems Laboratory (2 Credits)**
Introduction to basic measurement techniques and electrical laboratory equipment (power supplies, oscilloscopes, voltmeters, etc.). Design, construction, and characterization of digital circuits containing logic gates, sequential elements, oscillators, and digital integrated circuits. Introduction to digital design and simulation with the Verilog Hardware Description Language (HDL).
**Prerequisite:** Minimum grade of C- in ENEE244. And minimum grade of C- in ENEE150; or minimum grade of C- in CMSC132. And permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer).

**ENEE290 Introduction to Differential Equations and Linear Algebra for Engineers (4 Credits)**
First-order differential equations, matrices and systems of linear equations, finite-dimensional vector spaces, inner product spaces, eigenvalues and eigenvectors, linear differential equations of higher order, and systems of differential equations. This course covers important topics in mathematics for Electrical and Computer Engineers. Specifically, several topics are covered, including first-order differential equations, matrices and systems of linear equations, finite-dimensional vector spaces, inner product spaces, eigenvalues and eigenvectors, linear differential equations of higher order, and systems of differential equations. Theoretical topics presented in the lectures will be reinforced by laboratory exercises.
**Prerequisite:** Minimum grade of C- in MATH141; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer).
**Credit Only Granted for:** ENEE290, MATH240, MATH246, or MATH461.

**ENEE303 Analog and Digital Electronics (3 Credits)**
Conceptual operation of transistors and diodes. Large and small signal operation of BJTs and MOSFETs. Basic transistor configurations. Logic circuits and semiconductor memory. Multi-transistor circuits including differential amplifiers and current mirrors. Frequency response.
**Prerequisite:** Minimum grade of C- in ENEE205; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer).

**ENEE304 Introduction to Micro and Nanoelectronics (3 Credits)**
Introduction to semiconductor device physics: drift-diffusion model, pn junction properties, BJTs and FETs. Electronic circuits: diode circuits, BJT and MOSFET amplifiers, logic gates and multi-transistor circuits (such as differential amplifiers and current mirrors).
**Prerequisite:** Minimum grade of C- in ENEE205; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer).
**Credit Only Granted for:** ENEE304 or ENEE303; ENEE304 or ENEE313.

**ENEE305 Introduction to Micro and Nanoelectronics Lab (2 Credits)**
Introductory laboratory in semiconductors and electronics. Characterization of diodes followed by design and testing of analog and digital circuits at the transistor (FET and BJT) level.
**Prerequisite:** Minimum grade of C- in ENEE304; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in the following program (Engineering: Electrical).
**Credit Only Granted for:** ENEE305 or ENEE307.

**ENEE307 Electronic Circuits Design Laboratory (2 Credits)**
Students will design and test analog and digital circuits at the transistor level. FETs and BJTs will be covered. The laboratory experiments will be tightly coordinated with ENEE303 materials.
**Prerequisite:** Minimum grade of C- in ENEE303; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).

**ENEE313 Introduction to Device Physics (3 Credits)**
Basic physics of devices including fields in solids, crystal structure, properties of electrons and holes. Current flow in Si using drift-diffusion model. Properties of the pn junction. Properties of devices including BJTs, FETs and their physical characteristics.
**Prerequisite:** Minimum grade of C- in ENEE205; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer).

**ENEE322 Signal and System Theory (3 Credits)**
Concept of linear systems, state space equations for continuous systems, time and frequency domain analysis of signals and linear systems. Fourier, Laplace and Z transforms. Application of theory to problems in electrical engineering.
**Prerequisite:** Minimum grade of C- in MATH246 or ENEE290; and minimum grade of C- in ENEE222.
**Restriction:** Permission of ENGR-Electrical & Computer Engineering department. Must be in the following program (Engineering: Computer).
**Credit Only Granted for:** ENEE322 or ENEE323.

**ENEE323 Signals and Systems: Theory and Applications (4 Credits)**
This is a course and laboratory on signals and systems. The course lectures cover concepts in linear systems, and time and frequency domain analysis of signals and linear systems. Signal analysis topics: discrete- and continuous-time Fourier transforms, Laplace and z-transforms. Dynamical system properties: linearity, time-invariance, stability and invertibility. Analysis of linear time-invariant systems in the time domain (impulse response and convolution) and transform domain (transfer function and frequency response). Applications in signal processing, communications and control.
**Prerequisite:** Minimum grade of C- in MATH246 or ENEE290; and minimum grade of C- in ENEE222; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in the following program (Engineering: Electrical).
**Credit Only Granted for:** ENEE322 or ENEE323.

**ENEE324 Engineering Probability (3 Credits)**
Axioms of probability; conditional probability and Bayes' rules; random variables, probability distribution and densities: functions of random variables: weak law of large numbers and central limit theorem. Introduction to random processes; correlation functions, spectral densities, and linear systems. Applications to noise in electrical systems, filtering of signals from noise, estimation, and digital communications.
**Prerequisite:** Minimum grade of C- in MATH246 and ENEE222; and permission of ENGR-Electrical & Computer Engineering department.
**Credit Only Granted for:** DATA400, STAT400 or ENEE324.
**Additional Information:** Electrical Engineering majors may NOT substitute STAT400 for ENEE324.

**ENEE350 Computer Organization (3 Credits)**
Structure and organization of digital computers. Registers, memory, control and I/O. Data and instruction formats, addressing modes, assembly language programming. Elements of system software, subroutines and their linkages.
**Prerequisite:** Minimum grade of C- in ENEE244; and 1 course with a minimum grade of C- from (ENEE150, CMSC132); and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).

**ENEE351 Algorithms and Data Structures (4 Credits)**
Introduction to fundamental concepts in computer engineering, including topics in discrete math, data structures and algorithms. The course will also include a hands-on programming component. This course will provide students with the tools to design modular, time and space-efficient algorithms for real-world problems.
**Prerequisite:** Minimum grade of C- in ENEE150 and ENEE244.
**Restriction:** Permission of ENGR-Electrical & Computer Engineering department; and must be in the Computer Engineering Minor or the Academy of Machine Learning.
**Credit Only Granted for:** ENEE351 or CMSC351.

**ENEE359 Intermediate Topics in Computer Engineering (1-3 Credits)**
Selected intermediate level topics in computer engineering.
**Prerequisite:** Must have earned a minimum grade of regular (letter) C- in all required 100- and 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer).
**Repeatable to:** 6 credits if content differs.

**ENEE380 Electromagnetic Theory (3 Credits)**
Introduction to electromagnetic fields. Coulomb's law, Gauss's law, electrical potential, dielectric materials capacitance, boundary value problems, Biot-Savart law, Ampere's law, Lorentz force equation, magnetic materials, magnetic circuits, inductance, time varying fields and Maxwell's equations.
**Prerequisite:** Minimum grade of C- in ENEE205; and minimum grade of C- in MATH241, PHYS270, and PHYS271; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in Engineering: Electrical program.

**ENEE381 Electromagnetic Wave Propagation (3 Credits)**
The electromagnetic spectrum: Review of Maxwell's equations; the wave equation potentials, Poynting's theorem, relationship between circuit theory and fields; propagation of electromagnetic waves in homogeneous media and at interfaces; transmission line theory, waveguides, radiation and antennas.
**Prerequisite:** Minimum grade of C- in ENEE380; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in Engineering: Electrical program.

**ENEE382 Electromagnetics (4 Credits)**
Theory and tools needed to solve electromagnetic problems and understand how electromagnetic waves propagate and interact with materials. Fields and potentials. Maxwell's equations and wave propagation. Reflection and transmission. Transmission lines. Antennas and radiation.
**Prerequisite:** Minimum of C- or better in ENEE205, MATH241, PHYS270, and PHYS271; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in the Electrical Engineering program.
**Credit Only Granted for:** ENEE380 or ENEE382; ENEE381 or ENEE382.

**ENEE396 Leadership, Creativity and Service Learning (3 Credits)**
Introduction to engineering creativity and innovation in engineering. Application of creativity methods to topics in communication, service learning, teaching, research, and leadership. Discussions of leadership style, professional communication, and the handling of ethical dilemmas. Investigation of how experiential learning can enhance leadership and teamwork skills, connect to classroom learning and provide opportunities to gain practical experience.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).

**ENEE407 Design & Testing of RF and Microwave Devices (2 Credits)**
An introduction to state of the art design, and testing techniques of RF and microwave devices. Designs, simulations and layout of different devices are performed using the software package ADS (Advanced Design System). The course highlights a wide range of engineering applications including terrestrial microwave links, satellite communications, broadcasting, mobile communications and radar.
**Prerequisite:** Minimum grade of C- in ENEE381; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical) ; and permission of ENGR-Electrical & Computer Engineering department.

**ENEE408 Capstone Design Project (3 Credits)**
Culmination of prior course work in electrical and computer engineering. Utilization of modern design tools and methodologies for the design of components or systems under realistic constraints, with particular emphasis on teamwork and oral/written communication. Areas in which projects are currently offered include: microprocessor-based systems, digital systems, VLSI design (both digital and mixed-signal), and optical systems.
**Prerequisite:** Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).
**Repeatable to:** 6 credits if content differs.

**ENEE411 Advanced Analog and Digital Electronics (3 Credits)**
Examination of analog and digital device models for analysis, design, and simulation of transistor level electronic circuits, emphasizing Metal Oxide Silicon Field Effect Transistors (MOSFETs); fundamental single transistor configurations; frequency response, feedback, and stability of multi-transistor circuits, such as current mirrors, differential amplifiers, voltage references, operational amplifiers and data converters; complementary Metal Oxide Silicon (CMOS) implementations of static and clocked digital as well as mixed signal circuits.
**Prerequisite:** Minimum grade of C- in ENEE303.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer) ; and must have permission of the department.

**ENEE413 Advanced Electronic Devices (3 Credits)**
Advanced devices and their physical operation, providing a thorough description of those parts not usually covered in introductory electronics courses. These include Schottky and tunnel junctions, negative resistance devices used in wireless communication, homo-structure compound semiconductor transistors, hetero-structure (quantum effect) transistors, non-volatile memory devices, photonic devices such as LEDs and solid-state lasers, solar cells, photo-detectors and camera imagers, as well as bio-related components. Special consideration will be given to achieve an understanding of noise processes that limit electronic device performance. In all cases, system-level applications will be illustrated.
**Prerequisite:** Minimum grade of C- in ENEE313 or ENEE304.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical) ; and permission of ENGR-Electrical & Computer Engineering department.

**ENEE416 Integrated Circuit Fabrication Laboratory (3 Credits)**
Characterization of wafers and fabrication steps. Oxide growth, lithography, dopant diffusion, and metal deposition and patterning will be discussed in the lectures and carried out in the lab in fabricating NMOS transistor circuits. The transistor characteristics will be measured and related to the fabrication parameters.
**Prerequisite:** Minimum grade of C- in ENEE303; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).

**ENEE417 Microelectronics Design Laboratory (2 Credits)**
Students design and build fairly sophisticated circuits, mainly composed of discrete transistors and integrated circuits. Many of the projects are designed to require that students synthesize from what they have learned in many of the disciplines in electrical engineering. Students learn they can actually use their knowledge to build something very practical, which may include a high-fidelity amplifier, a radio, a memory cell, a transmitter, etc.
**Prerequisite:** Minimum grade of C- in ENEE303; and minimum grade of C- in ENEE307; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer).

**ENEE419 Topics in Microelectronics (1-3 Credits)**
Selected topics of current importance in microelectronics.
**Prerequisite:** Permission of ENGR-Electrical & Computer Engineering department; and completion of all lower-division technical courses in the EE curriculum.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer).
**Repeatable to:** 99 credits if content differs.

**ENEE420 Communication Systems (3 Credits)**
Fourier series, Fourier transforms and linear system analysis; random signals, autocorrelation functions and power spectral densities; analog communication systems: amplitude modulation, single-sideband modulation, frequency and phase modulation, sampling theorem and pulse-amplitude modulation; digital communication systems pulse-code modulation, phase-shift keying, differential phase shift keying, frequency shift keying; performance of analog and digital communication systems in the presence of noise.
**Prerequisite:** ENEE322, ENEE324; and completion of all lower-division technical courses in the EE curriculum.

**ENEE425 Digital Signal Processing (3 Credits)**
Sampling as a modulation process; aliasing; the sampling theorem; the Z-transform and discrete-time system analysis; direct and computer-aided design of recursive and nonrecursive digital filters; the Discrete Fourier Transform (DFT) and Fast Fourier Transform (FFT); digital filtering using the FFT; analog-to-digital and digital-to analog conversion; effects of quantization and finite-word-length arithmetic.
**Prerequisite:** ENEE322; and completion of all lower-division technical courses in the EE curriculum.

**ENEE426 Communication Networks (3 Credits)**
The main design issues associated with computer networks, satellite systems, radio nets, and general communication networks. Application of analytical tools of queuing theory to design problems in such networks. Review of proposed architectures and protocols.
**Prerequisite:** ENEE324 or STAT400; and completion of all lower-division technical courses in the EE curriculum.
**Restriction:** Must be in Engineering: Computer or Engineering: Electrical program.
**Credit Only Granted for:** CMSC417 or ENEE426.

**ENEE428 Communications Design Laboratory (2 Credits)**
Advanced Laboratory course exploring signal processing and communication systems theoretical concepts and implementing them on actual DSP based hardware in real time.
**Prerequisite:** ENEE322; and ENEE324 or STAT400; and completion of all lower-division technical courses in the EE curriculum.
**Restriction:** Must be in Engineering: Electrical or Engineering: Computer program; and permission of Electrical and Computing Engineering Department.

**ENEE429 Topics in Communications (1-3 Credits)**
Selected topics of current importance in communications.
**Prerequisite:** Permission of ENGR-Electrical & Computer Engineering department; and completion of all lower-division technical courses in the EE curriculum.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer).
**Repeatable to:** 99 credits if content differs.

**ENEE436 Foundations of Machine Learning (3 Credits)**
A broad introduction to the foundations of Machine Learning (ML), as well as hands-on experience in applying ML algorithms to real-world data sets. Topics include various techniques in supervised and unsupervised learning, as well as applications to computer vision, data mining, and speech recognition.
**Prerequisite:** 1 course with a minimum grade of C- from (ENEE324, STAT400); and 1 course with a minimum grade of C- from (ENEE150, CMSC216); and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Permission of ENGR-Electrical & Computer Engineering department. And must be in one of the following programs (Engineering: Electrical; Engineering: Computer) ; or must be in the ECE Department's Machine Learning notation program.
**Credit Only Granted for:** ENEE436, ENEE439M, or CMSC422.
**Formerly:** ENEE439M.

**ENEE439 Topics in Signal Processing (1-3 Credits)**
Selected topics of current importance in signal processing.
**Prerequisite:** Permission of ENGR-Electrical & Computer Engineering department; and completion of all lower division technical courses in the EE curriculum.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).
**Repeatable to:** 99 credits if content differs.

**ENEE440 Microprocessors (3 Credits)**
Microprocessor architectures, instruction sets, and applications. Bus structures, memory, I/O interfacing. Assembly language programming, LSI device configuration, and the embedding of microprocessors in systems.
**Prerequisite:** ENEE350; and completion of all lower division technical courses in the EE curriculum.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).

**ENEE445 Computer Laboratory (2 Credits)**
This laboratory course focuses on the hardware/software interface in computer systems. Hands-on experiments are used to teach design, construction, analysis, and measurement of both hardware and software for embedded systems. Projects emphasize using microcontrollers for control, sensing, and communication through various I/O devices.
**Prerequisite:** Minimum grade of C- in ENEE205; or minimum grade of C- in ENEE206; and minimum grade of C- in ENEE350; and must have earned a minimum grade of C- in all 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).

**ENEE446 Digital Computer Design (3 Credits)**
Hardware design of digital computers. Arithmetic and logic units, adders, multipliers and dividers. Floating-point arithmetic units. Bus and register structures. Control units, both hardwired and microprogrammed. Index registers, stacks, and other addressing schemes. Interrupts, DMA and interfacing.
**Prerequisite:** ENEE350; and completion of all lower-division technical courses in the EE curriculum.
**Restriction:** Permission of ENGR-Electrical & Computer Engineering department.
**Credit Only Granted for:** ENEE446 or CMSC411.

**ENEE447 Operating Systems (4 Credits)**
The course will present the theory, design, implementation and analysis of computer operating systems. Through classroom lectures, homework, and projects, students learn the fundamentals of concurrency, process management, interprocess communication and synchronization, job scheduling algorithms, memory management, input-output devices, file systems, and protection and security in operating systems. Optional topics may include communications protocols, computer security, and real-time operating systems. The lectures will be complemented with a significant level of programming, bringing up a simple operating system from scratch, concurrently as the topics are discussed in lecture. A weekly recitation section will provide TA support and an informal laboratory atmosphere. Each student will have their own board, so development will be done largely outside the classroom at each student's pace.
**Prerequisite:** 1 course with a minimum grade of C- from (CMSC414, CMSC417, CMSC420, CMSC430, CMSC433, CMSC435, ENEE440, ENEE457); and permission of ENGR-Electrical & Computer Engineering department; and (ENEE350, CMSC330, and CMSC351).
**Restriction:** Must be in Engineering: Computer program; and permission of ENGR-Electrical & Computer Engineering department.
**Credit Only Granted for:** ENEE447 or CMSC412.

**ENEE456 Cryptography (3 Credits)**
The theory, application, and implementation of mathematical techniques used to secure modern communications. Topics include symmetric and public-key encryption, message integrity, hash functions, block-cipher design and analysis, number theory, and digital signatures.
**Prerequisite:** (CMSC106, CMSC131, or ENEE150; or equivalent programming experience); and (2 courses from (CMSC330, CMSC351, ENEE324, or ENEE380); or any one of these courses and a 400-level MATH course, or two 400-level MATH courses); and Permission of CMNS-Mathematics department or permission of instructor .
**Cross-listed with:** MATH456, CMSC456.
**Credit Only Granted for:** MATH456, CMSC456 or ENEE456.

**ENEE457 Computer Systems Security (3 Credits)**
Theoretical and practical aspects of computer systems security. Topics covered include symmetric/asymmetric encryption, message authentication, digital signatures, access control, as well as network security, web security and cloud security. Students acquire tools necessary for designing secure computer systems and programs and for defending against malicious threats (e.g., viruses, worms, denial of service).
**Prerequisite:** Minimum grade of C- in ENEE350; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer) ; and permission of ENGR-Electrical & Computer Engineering department.
**Credit Only Granted for:** CMSC414 or ENEE457.

**ENEE459 Topics in Computer Engineering (1-3 Credits)**
Selected topics of current importance in computer engineering.
**Prerequisite:** Permission of ENGR-Electrical & Computer Engineering department; and completion of all lower-division technical courses in the EE curriculum.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).
**Repeatable to:** 99 credits if content differs.

**ENEE460 Control Systems (3 Credits)**
Mathematical models for control system components. Transform and time domain methods for linear control systems. Introductory stability theory. Root locus, bode diagrams and Nyquist plots. Design specifications in the time and frequency domains. Compensation design in the time and frequency domain. Introduction to sampled data systems.
**Prerequisite:** ENEE322; and (ENEE290, MATH240, or MATH461); and completion of all lower-division technical courses in the EE curriculum.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).

**ENEE461 Control Systems Laboratory (3 Credits)**
Students will design, implement, and test controllers for a variety of systems. This will enhance their understanding of feedback control and familiarize them with the characteristics and limitations of real control devices. They will also complete a small project. This will entail writing a proposal, purchasing parts for their controller, building the system, testing it, and writing a final report describing what they have done.
**Prerequisite:** Minimum grade of C- in ENEE205; and minimum grade of C- in ENEE322; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).
**Credit Only Granted for:** ENEE461, ENME461, or ENME489N.

**ENEE463 Digital Control Systems (3 Credits)**
Introduction to techniques for the analysis and design of linear control systems and implementation of control systems using digital technology. Topics include linearization, solution of linear equations, z-transforms and Laplace transforms, design of linear controllers, optimal control, and digital implementation of control designs. Students will use MATLAB for the solution of problems and the design of control systems.
**Prerequisite:** ENEE322; and completion of lower-division technical courses in the EE curriculum.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer).

**ENEE467 Robotics Project Laboratory (3 Credits)**
Teaches practical skills to build, control, and deploy robotic systems. Interdisciplinary groups of students develop real-world robotic systems, with emphasis on making a real robot do what one wants it to do.
**Prerequisite:** Minimum grade of C- in ENAE450 or (ENEE322 and a course which covers academic content similar to that of ENAE450 with approval from the Department of Electrical and Computer Engineering).
**Restriction:** Must be in the Robotics and Autonomous Systems minor; and permission of Department of Electrical and Computer Engineering.

**ENEE469 Topics in Controls (1-3 Credits)**
Selected topics of current importance in controls.
**Prerequisite:** Permission of ENGR-Electrical & Computer Engineering department; and completion of all lower-division technical courses in the EE curriculum.
**Repeatable to:** 99 credits if content differs.

**ENEE473 Electrical Machines Laboratory (2 Credits)**
Experiments involving single and three phase transformers, induction machines, synchronous machines and D.C. machines.
**Prerequisite:** Minimum grade of C- in ENEE205; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department.
**Recommended:** ENEE322.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer).

**ENEE474 Power Systems (3 Credits)**
Interconnected power systems, transmission lines, load flow studies, unit commitment and economic dispatch. Three phase networks, machine models. Symmetrical components, fault analysis and unbalanced operation. Power system transients, stability and numerical methods in power system analysis.
**Prerequisite:** ENEE322; and completion of all lower-division technical courses in the EE curriculum.

**ENEE475 Power Electronics (3 Credits)**
This course is suitable for undergraduate and graduate students who want to learn the basic principles of power electronics and its applications. Special emphasis is placed on the interdisciplinary nature of power electronics. Strong and intimate connections between power electronics and circuit theory, electronic circuits, semiconductor devices, electric power, magnetic, motor drives and control are stressed.
**Prerequisite:** Minimum grade of C- in ENEE303; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Electrical; Engineering: Computer).

**ENEE476 Renewable Energy (3 Credits)**
Solar Energy Conversion Systems: History of Photovoltaic (PV) Systems, PV Cell, Module and Array Models and Equivalent Circuits, Characteristic Resistance, Fill Factor, Effects of Parasitic Resistances, Mismatch Effects, Shading, Bypass Diodes, Sun Tracking Systems, Maximum Power Point Tracking (MPPT) Techniques, Isolated and Non-isolated Switch-mode DC/DC for PV Systems, Inverter Design and Control, Sizing the PV Panel and Battery Pack in PV Applications. Wind Energy Conversion Systems: Introduction to Wind Energy Harvesting, Horizontal and Vertical Wind Systems, Fundamentals of Wind Energy Harvesting Systems, Variable Speed and Fixed Speed Wind Energy Conversion Systems (WECS), Wind Turbines and Different Electrical Machines in Wind Applications, Induction Machine and Dynamic Model of Induction Machines, Synchronous Generators and Dynamic Model of SG, Control of Wind Energy Conversion Systems.
**Prerequisite:** Minimum grade of C- in ENEE303; and completion of all lower-divisions ENEE courses with a C- or better.
**Restriction:** Permission of ENGR-Electrical & Computer Engineering department; and must be in one of the following programs (Engineering: Electrical; Engineering: Computer).

**ENEE486 Optoelectronics Lab (2 Credits)**
Hands-on experience in performing measurements in optics and electro-optics. Basics of optics, light detectors, Fourier optics, gratings and spectrometers, pulsed dye lasers, fiber optics, electro-optics, and acousto-optics.
**Prerequisite:** Minimum grade of C- in ENEE205; or minimum grade of C- in ENEE206. And minimum grade of C- in PHYS271 and PHYS270; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).

**ENEE488 Independent Study in Electrical and Computer Engineering (1-3 Credits)**
The purpose is to provide students with an opportunity for independent study projects on advanced electrical and computer engineering topics. These projects typically involve academic investigations of technical themes that are not addressed in the established elective and special topics courses taught by the department on a regular basis. Study plans are tailored to students educational goals but are approved and supervised by faculty.
**Prerequisite:** Must have completed and earned a minimum grade of regular (letter) C- in all lower-division EE or CP tech electives; and permission of ENGR-Electrical & Computer Engineering department.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).
**Repeatable to:** 9 credits if content differs.
**Additional Information:** A total of 5 credits combined of ENEE488 and ENEE499 can count towards a degree in electrical and computer engineering.

**ENEE489 Topics in Electrophysics (1-3 Credits)**
Selected topics of current importance in electrophysics.
**Prerequisite:** Permission of ENGR-Electrical & Computer Engineering department; and completion of all lower-division technical courses in the EE curriculum.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).
**Repeatable to:** 99 credits if content differs.

**ENEE490 Physical Principles of Wireless Communications (3 Credits)**
This course is intended to give students an overall understanding of the physical phenomena involved in wireless communications and to allow them to make first-cut designs. Major topics covered include antennas, antenna arrays, radiowave scattering and propagation, noise sources in communications systems, cell phone systems and satcom.
**Prerequisite:** ENEE381.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).

**ENEE491 Quantum Phenomena in Electrical Engineering (3 Credits)**
Wave phenomena, wave-particle duality and laws of quantum mechanics. States, observables, operators and measurement, as applied to simple quantum circuits, information transmission and quantum key distribution. Also, covered: Schrodinger's equation, bound states, tunneling, scattering, periodic potentials, superconductivity and Josephson junctions.
**Prerequisite:** Minimum grade of C- in PHYS270, ENEE205 and (ENEE290 or MATH461).
**Restriction:** Permission of Electrical and Computer Engineering Department.
**Credit Only Granted for:** ENEE491 or ENEE489Q.
**Formerly:** ENEE489Q.

**ENEE496 Lasers and Electro-optic Devices (3 Credits)**
Modern physical optics: Gaussian beams, optical resonators, optical waveguides; theory of laser oscillation, rate equations; common laser systems. Selected modern optoelectronic devices like detectors and modulators. Role of lasers and optoelectronics in modern technology.
**Prerequisite:** ENEE381; and completion of all lower-division technical courses in the EE curriculum.
**Restriction:** Must be in one of the following programs (Engineering: Computer; Engineering: Electrical).

**ENEE498 Topics in Electrical Engineering (1-3 Credits)**
Selected topics of current importance in electrical engineering.
**Prerequisite:** Permission of ENGR-Electrical & Computer Engineering department; and completion of all lower-division technical courses in the EE curriculum.
**Restriction:** Must be in Engineering: Electrical program.
**Repeatable to:** 12 credits if content differs.

**ENEE499 Senior Projects in Electrical and Computer Engineering (1-6 Credits)**
The purpose is to provide students with an opportunity to engage in independent research projects on advanced electrical and computer engineering topics. Projects are selected by students and supervised by faculty and other qualified mentors. While students may be required to acquire new skills or information in the course of completing a 499 project, the focus is to conduct an independent investigation of a technical theme by the student. The project may be used to satisfy the advanced lab requirement if it is approved as a primarily experimental research project. In that case, the student will enroll in ENEE499L.
**Prerequisite:** Completion of all lower-division technical courses in the electrical or computer engineering curriculum.
**Restriction:** Permission of ENGR-Electrical & Computer Engineering department.
**Repeatable to:** 6 credits if content differs.
**Additional Information:** For students in the ECE Honors Program, a total of 6 credits combined of ENEE488 and ENEE499/499L can count toward a degree in electrical or computer engineering. For non-honors ECE students, a total of 5 credits combined of ENEE488 and ENEE499/499L can count toward a degree in electrical or computer engineering.

# ENES - Engineering Science

**ENES100 Introduction to Engineering Design (3 Credits)**
Students work as teams to design and build a product using computer software for word-processing, spreadsheet, CAD, and communication skills.
**Prerequisite:** Must have math eligibility for MATH140 or higher.

**ENES102 Mechanics I (3 Credits)**
The equilibrium of stationary bodies under the influence of various kinds of forces. Forces, moments, couples, equilibrium, trusses, frames and machines, centroids, moment of inertia, beams, friction, stress/strain, material properties. Vector and scalar methods are used to solve problems.
**Corequisite:** MATH140.
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering.
**Formerly:** ENES110.

**ENES106 Achieving Success in Mathematics (3 Credits)**
An exploration of the skills and habits needed to successfully complete introductory mathematics courses.
**Restriction:** Permission of ENGR-A. James Clark School of Engineering.

**ENES107 Achieving College Excellence (1-3 Credits)**
An exploration of the skills and habits needed to successfully complete the introductory chemistry course for engineering students. Course will also include strategies for a successful first year experience.
**Restriction:** Permission of ENGR-A. James Clark School of Engineering.

**ENES108 Achieving College Success: First Year Transition (1 Credit)**
An exploration of the skills and habits needed to successfully complete the first year of study for Science, Technology, Engineering, and Mathematics (STEM) majors. This course is an extension of the college success seminars taught during the Summer Bridge Program.
**Restriction:** Permission of ENGR-A. James Clark School of Engineering.
**Repeatable to:** 2 credits if content differs.

**ENES113 Virtus Living and Learning Community Seminar I (1 Credit)**
The seminar focuses on personal and professional development related to the field of engineering with a strong emphasis on clarifying career goals and decisions. Additional topics include an introduction to basic tools, undergraduate research opportunities, and campus and engineering resources.
**Restriction:** Must be in first year Virtus program.

**ENES114 Virtus Seminar II (1 Credit)**
Focus on personal and professional development with engineering with a strong emphasis on career development. Learn to employ strategies and skills for academic and professional success.
**Prerequisite:** ENES113.
**Restriction:** Students must be participants in the Virtus Living and Learning Community.

**ENES115 FLEXUS Living and Learning Community Seminar I (1 Credit)**
The seminar focuses on personal and professional development related to the field of engineering with a strong emphasis on clarifying career goals and decisions. Additional topics include an introduction to campus and engineering resources, basic tools, and undergraduate research opportunities. Students will discuss issues of concern through a variety of book readings, self-reflections, and panel discussions with practicing women engineers.
**Restriction:** Must be a first year FLEXUS Participant.

**ENES116 FLEXUS Living and Learning Community Seminar II (1 Credit)**
The seminar focuses on personal and professional development by enhancing technical ability, understanding educational options through minors and student projects in engineering, identifying and employing strategies and skills for academic and professional success, and developing career commitment through networking and mentoring. Students develop professional portfolios in preparation for a future internship or job.
**Prerequisite:** ENES115.

**ENES138 Equity and Inclusion in Engineering Design (1 Credit)**
Through deliberate reflections on the past and current patterns of exclusion and inclusion within engineering, you will develop skills for engaging in equitable and inclusive processes and practices that can transform your collaborations and approach to engineering and the design process. This course engages students, from multiple social identity groups, in facilitated dialogue that focus on the tensions, similarities, and differences of experience that exist within, between, and/or across groups.
**Restriction:** Must be a student in the A. James Clark School of Engineering or in the Global Engineering Leadership minor.
**Credit Only Granted for:** ENES338K, CHSE338K, or ENES138.
**Formerly:** ENES338K.

**ENES140 Discovering New Ventures (3 Credits)**
Students explore dynamic company startup topics by working in teams to design a new venture. This multi-disciplinary course helps students to learn the basic business, strategy, and leadership skills needed to launch new ventures. Topics include learning how to assess the feasibility of a startup venture, as well as how to apply best practices for planning, launching, and managing new companies. Students discuss a wide range of issues of importance and concern to entrepreneurs and learn to recognize opportunities, assess the skills and talents of successful entrepreneurs, and learn models that help them navigate uncertainty.
**Additional Information:** This course may count as an elective for a student at the University of Maryland, depending on the student's specific degree program. It cannot be counted towards the requirements for the Smith School of Business Entrepreneurship Fellow Program.

**ENES150 Transfer LEAD Seminar I (2 Credits)**
This seminar focuses on personal and professional development for transfer students in the A. James Clark School of Engineering. Transfer LEAD is a program for Engineering transfer students with four main outcomes: Learn, Educate, Adapt, Direct. Topics covered in this course include campus resources, student identity development, leadership development, and student outreach. Students will learn educational theory in order to develop a sense of leadership as students in the Clark School of Engineering.
**Restriction:** Eligible external transfer students in the A. James Clark School of Engineering; and permission of instructor.

**ENES152 Transfer LEAD Seminar II (1 Credit)**
This is a continuation of ENES150: Transfer LEAD Seminar I. Transfer LEAD is a program for Engineering transfer students with four main outcomes: Learn, Educate, Adapt, Direct. In this course, students will apply the concepts they learned in ENES150 in a practical setting. Students will focus on engagement, communication, and peer education.
**Prerequisite:** ENES150.
**Restriction:** Must be an eligible external transfer student in the A. James Clark School of Engineering; and permission of instructor.

**ENES181 Engineering & The Grand Challenges (1 Credit)**
Introduction to the various fields of engineering and the necessary context for students to fully engage in selected National Academy of Engineering's Grand Challenges such as economical solar energy, carbon sequestration, access to clean water, engineering better medicines, restoring urban infrastructure and personalized learning. The lectures and activities will provide an introduction to the engineering disciplines, NAE Grand Challenges, STEM cultures, and research.
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering; and must be a new freshman or transfer student.

**ENES190 Introduction to Design and Quality (4 Credits)**
QUEST students learn and apply design practices to design new products and services. Working in multidisciplinary teams, students use quality and process improvement methods to identify, analyze, and recommend solutions to real-world problems.
**Cross-listed with:** BMGT190.
**Restriction:** Must be in the Quest program.
**Credit Only Granted for:** BMGT190 or ENES190.

**ENES192 Engineering For Us All (3 Credits)**
Students are challenged to uncover hidden valuable connections among a variety of disciplines, while creatively seeking and solving problems as a team. Students learn and practice skills for how groups function and identify innovation while addressing the tensions between our inherent drives to seek and solve, to share, and to sell.
**Prerequisite:** MATH107.
**Additional Information:** Recommended for non-engineering majors.

**ENES197 The Fault in Our Data: What Counts and Who's Counting (3 Credits)**
Quantitative data and analysis are key to understanding the shape of the world. In this course, we will use the tools of computational analysis to load, interrogate, visualize, and model datasets from dozens of data points to hundreds of thousands. We'll look at how computational methods can tell us when a movie is sexist, how wealth inequality can form, and how rumors spread like diseases. Then, you will find datasets of interest, write code to make sense of them, and share your findings with the world. No prior programming experience is required.
**Prerequisite:** MATH113 or equivalent.
**Recommended:** MATH115.

**ENES200 Technology and Consequences: Engineering, Ethics and Humanity (3 Credits)**
What makes a technology socially responsible? At UMD, the Fearless Ideas campaign asks us to aim our enthusiasm for technology at big real problems. At the same time, we are coming to appreciate the increasingly complex nature of technological systems as they become integrated into all forms of infrastructure, we realize they may be unpredictable, interdependent on social and biological systems, and have unintended consequences. In this midst of this complexity, people make decisions with far reaching impacts. How then do we follow our passion for technology and innovation but also stay skeptical in a way that allows us to consider the potential and shortcomings of technology? Designed for both engineering and non-engineering students wishing to explore and assess the impact of engineering technology on society and the role of society in generating that technology.
**Credit Only Granted for:** ENEE200 or ENES200.

**ENES210 Entrepreneurial Opportunity Analysis and Decision-Making in 21st Century Technology Ventures (3 Credits)**
This multi-disciplinary course helps students learn the principles of entrepreneurial opportunity analysis and decision-making in an increasingly dynamic and technically-inclined society. Emphasis is placed on how aspiring technology entrepreneurs can develop their entrepreneurial perspectives to develop winning entrepreneurial plans for their future ventures.
**Credit Only Granted for:** ENES210 or ENES461.

**ENES211 Introduction to Global Entrepreneurship (1 Credit)**
Examines the opportunities and challenges of entrepreneurship and innovation from an international perspective through lectures, case studies, instructors, and guest speakers with international experiences and other relevant activities. Focuses on the benefit for every entrepreneur and innovator to understand the cultural, strategic and operational aspects related to conducting entrepreneurial ventures in an international context.

**ENES213 Virtus Living and Learning Community Seminar III (1 Credit)**
The seminar focuses on personal, academic and professional success by cultivating leadership skills, developing academic and technical ability and encouraging self awareness, identifying and employing strategies for academic and professional success, further enhancing career development through networking and mentoring and developing awareness of diversity issues.
**Prerequisite:** ENES113.
**Restriction:** Must be a participant in the second year of the Virtus program.

**ENES214 Virtus Seminar IV (1 Credit)**
Students continue to develop their leadership and mentoring skills, participate in networking opportunities and explore their interest in special engineering topics.
**Prerequisite:** Students must have completed ENES213.
**Restriction:** Students must be participants in the Virtus Living and Learning Community.

**ENES215 FLEXUS Living and Learning Community Seminar III (1 Credit)**
The seminar focuses on personal, academic and professional success by cultivating leadership skills, developing self-confidence and self-efficacy in academic and technical ability and encouraging self awareness, identifying and employing strategies for academic and professional success, further enhancing career development through networking, mentoring and role modeling, and developing awareness of diversity issues, specifically gender diversity.
**Prerequisite:** ENES115 and ENES116.
**Restriction:** Must be a second year FLEXUS participant.

**ENES216 FLEXUS Living and Learning Community Seminar IV (1 Credit)**
The seminar focuses on gender diversity and its cross-sections with culture. Students continue to enhance their leadership and mentoring skills, participate in networking opportunities with women in leadership roles and careers in engineering, and engage in opportunities for outreach and service-learning. Students will also complete a culminating semester project.
**Prerequisite:** ENES115, ENES116, and ENES215.
**Restriction:** Restricted to second year FLEXUS participants.

**ENES220 Mechanics II (3 Credits)**
Stress and deformation of solids-rods, beams, shafts, columns, tanks, and other structural, machine and vehicle members. Topics include stress transformation using Mohr's circle; shear and moment diagrams; derivation of elastic curves; and Euler's buckling formula. Design problems related to this material are given in lab.
**Prerequisite:** Minimum grade of C- in ENES102; and (MATH141 and PHYS161).
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering; and must not be in Engineering: Electrical program.

**ENES221 Dynamics (3 Credits)**
Systems of heavy particles and rigid bodies at rest and in motion. Force-acceleration, work-energy and impulse-momentum relationships. Motion of one body relative to another in a plane and in space.
**Prerequisite:** Minimum grade of C- in ENES102; and (MATH141 and PHYS161).
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering.

**ENES232 Thermodynamics (3 Credits)**
Introduction to thermodynamics. Thermodynamic properties of matter. First and second laws of thermodynamics, cycles, reactions, and mixtures.
**Prerequisite:** PHYS261 and PHYS260.
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering.
**Credit Only Granted for:** BIOE232, CHBE301, ENCH300, ENES232, ENME320, or ENME232.
**Formerly:** ENME232 and ENME320.

**ENES240 Ethical, Policy and Social Implications of Science and Technology (3 Credits)**
Asks students to think about how society should manage complexity, transformation, and uncertainty with an eye on developing a broader sense of ethics and social responsibility. Introduces analytical frameworks, concepts, and data collection techniques that interdisciplinary scholars use to map relationships among science, technology and society and generate important questions about the future of society.
**Cross-listed with:** PLCY240.
**Restriction:** Must be in the Science, Technology, Ethics and Policy minor.
**Credit Only Granted for:** ENES240 or PLCY240.

**ENES250 Why Do Things Fail? (3 Credits)**
Why did the Silver Bridge between Ohio and West Virginia collapse on Christmas Eve, 1967? What caused the top of an Aloha Airlines flight to rupture, creating a convertible airplane? How do these kinds of massive structural damage occur, and how might we prevent them? This course will introduce students to topics of stress and strain and their importance in determining the safety and reliability of engineering structures. Some of the major structural failures worldwide will be identified and researched as to the circumstances leading up to the failures. Reasons for failures will be investigated and are expected to include engineering, social, political, ethical, and economic explanations. Other possible failures to be researched and analyzed would be the collapse of a walkway in Kansas City, the failure of the Tacoma Narrows Bridge in Washington, the collapse of a bridge on Interstate 95 in Connecticut, and the collapse of the Twin Towers in New York after 911.
**Credit Only Granted for:** HONR288O or ENES250.
**Formerly:** HONR288O.

**ENES259 Study Abroad Special Topics in Engineering II (1-6 Credits)**
Special topics course in engineering science taken as part of an approved study abroad program.
**Repeatable to:** 6 credits if content differs.

**ENES269 Topics in Grand Challenges for Engineering in a Global Context (3 Credits)**
Special topics course that explores the grand engineering challenges facing the world from a technical, cultural, political, and economic perspective, as well as solutions developed through innovation and technology. Topics can include energy, environment, urban infrastructure, health, safety and security, and engineering the tools of discovery.
**Repeatable to:** 6 credits if content differs.
**Additional Information:** Course includes a study abroad component. No engineering background is required.

**ENES275 How Do You Navigate Leadership in Times of Crisis? (3 Credits)**
Students take part in immersive opportunities to learn from industry professionals about crisis prevention and response. The course introduces students to the study and practice of leadership with promising practices in disaster preparedness and data informed decision-making. Global communities need those who can lead during times of crisis and understand when and how to use data to inform decisions in times of crisis. This course will examine how leadership has been enacted to help local, national, and global communities navigate through pandemics, disasters, and other humanitarian crises. Students will develop capacities for informed leadership in times of crisis and develop an understanding for applying these skills in a variety of settings.
**Credit Only Granted for:** ENES275 or ENES475.

**ENES288 Engineering Leadership Seminar (1-4 Credits)**
Engineering leadership will be examined at the individual, team and organizational levels.
**Corequisite:** ENES100; or permission of instructor.

**ENES304 RISE Seminar (1 Credit)**
This is the first semester of a two semester sequence taken by RISE students in their first semester in the program. T he purpose of ENES 304 is for RISE students to learn about leadership, acquire leadership skills, and understand how to integrate leadership theories and concepts in engineering practice. There will be a mix of formal lectures by course faculty and lectures by distinguished speakers who can provide their own experience of what leadership means and how it is acquired. Students will explore their own leadership philosophy and leadership capacities in the context of group practice. Students will make meaning of general leadership theories and concepts and understand how to apply them to engineering industry. Students will also gain understanding of leadership through the stories shared by distinguished speakers with industrial, governmental and academic experience.
**Restriction:** Must be in the Engineering RISE Leadership Program; and permission of ENGR-A. James Clark School of Engineering.

**ENES305 RISE Leadership Seminar (1 Credit)**
This is the second semester of a two semester sequence taken by RISE students in their final semester in the program. The purpose of ENES 305 is for RISE students to learn about leadership, acquire leadership skills, and understand how to integrate leadership theories and concepts in engineering practice. There will be a mix of formal lectures by course faculty and lectures by distinguished speakers who can provide their own experience of what leadership means and how it is acquired. Students will explore their own leadership philosophy and leadership capacities in the context of group practice. Students will make meaning of general leadership theories and concepts and understand how to apply them to engineering industry. Students will also gain understanding of leadership through the stories shared by distinguished speakers with industrial, governmental and academic experience.
**Prerequisite:** Permission of ENGR-A. James Clark School of Engineering; and ENES304.

**ENES316 Global Leadership in Engineering, Business, & Technology (3 Credits)**
An introduction to global leadership research, theories, and practice with an emphasis on applied dimensions of global leadership in the engineering, business, and technology sectors. This course prepares students to further their knowledge and capacities for global leadership to be successful in industry.
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering; or permission of instructor.
**Additional Information:** Students will be required to participate in off-campus industry visits outside of the formal class meeting time.

**ENES317 Introduction to Leadership in Engineering, Science, and Technology (3 Credits)**
Develop a comprehensive overview and introduction to leadership and organizational development. Students will reflect on their own leadership experiences, develop a strong foundational knowledge of leadership theory, and advance their capacities in effectively leading teams. Students will connect leadership theory to practice by engaging in case study analysis and critique leadership practices enacted within engineering and technology settings. Students will complete self-assessments to better understand their own leadership strengths and refine their approaches to leadership by incorporating theories covered in this course.
**Restriction:** Must be in the Minor in Global Engineering Leadership(#EN09).
**Additional Information:** Students not meeting restriction requirements should add themselves to the course holdfile. Restrictions DO NOT apply to winter and summer terms.

**ENES338 Navigating Social Identity Difference through Intergroup Dialogue (1 Credit)**
Engages students, from one or more cultural identity groups, in facilitated dialogue about the similarities and differences of experience that exist within a group and/or between and across groups. The goal of intergroup dialogue is for students to develop comfort with, and skill for, discourse on identity-based topics toward the end of fostering positive, meaningful, and sustained cross-group relationships. Whereas in debate, students learn to listen to gain advantage, in intergroup dialogue, students learn to listen to gain understanding. In so doing, students develop increased multicultural interaction facility, heightened intergroup awareness and sensitivity, and greater commitment to civic engagement.
**Prerequisite:** Completion of on-line enrollment form.
**Cross-listed with:** WEID139.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** CHSE338, EDHI338, ENES338 or WEID139.
**Formerly:** CHSE338.

**ENES340 Engineering and Social Justice (3 Credits)**
Students will explore the relationships between engineering and social justice through personal reflection and historical and contemporary case studies. Students will explore their own social locations, privileges, alliances, and resistances to social justice through critical engagement of interdisciplinary readings that challenge engineering mindsets and ideologies. Students will work to understand what constitutes social justice in different areas of social life and the role that engineers, and engineering might play. Students will gain an understanding of why and how engineering has been aligned and divergent from social justice issues and causes.
**Prerequisite:** ENEE200.

**ENES359T Education, Technology and Society: Ecuador in Context (3 Credits)**
Set in the UNESCO World Heritage site of Cuenca, Ecuador, students in this short-term study abroad course use theory from Science and Technology Studies (STS) to explore, discuss and critique the design, development and implementation of technology-based social programs in Ecuador. The program looks at education and technology throughout multiple lenses and contexts. Collaboration with the University of Cuenca, participating students have the opportunity for both university and field-based research and practice. UMD students work alongside students and faculty from the leaders and practitioners from UCuenca, government agencies, nongovernmental organizations, small business and local communities.
**Recommended:** 1 course from (ENES240, ENES200, or ENEE200).
**Restriction:** Minimum cumulative GPA of 2.5.
**Credit Only Granted for:** ENES259T, ENES359T, CPSP279T, or LASC269T.
**Formerly:** ENES259T.
**Additional Information:** Priority enrollment will be given to students matriculating through the Science, Technology, Ethics and Policy (STEP) minor.

**ENES388 Engineering Honors Seminar (1 Credit)**

**ENES389 Selected Topics (3 Credits)**
**Repeatable to:** 6 credits if content differs.

**ENES390 Designing Innovative Systems (3 Credits)**
QUEST students develop an understanding of complex systems that incorporate elements of business and technical design and analyze how these systems evolve over time and may be shaped by technology disruptions, internal decisions, and external forces. Students apply these concepts to real-world complex systems in a team environment.
**Prerequisite:** ENES190 or BMGT190.
**Cross-listed with:** BMGT390.
**Restriction:** Must be in the QUEST program.
**Credit Only Granted for:** BMGT390 or ENES390.

**ENES397 Mentoring Multidisciplinary Teams (3 Credits)**
QUEST students practice essential skills for mentoring and coaching multidisciplinary teams. These include effective communications, facilitation, conflict resolution, and the ability to motivate. Students will practice these skills as mentors for student teams from BMGT/ENES 190H. In the process, they will strengthen their knowledge of design and quality techniques.
**Cross-listed with:** BMGT397.
**Restriction:** Restricted to QUEST Program (TQMP) students.
**Credit Only Granted for:** BMGT397 or ENES397.

**ENES401 Entrepreneurial Design Realization (3 Credits)**
The vision for this course, and an aspect that makes it unique, is to expose students to the opportunities and challenges of bringing a product design to reality (entrepreneurship). The emphasis is on environmentally and socially sustainable projects. The end-product of this course will be full-scale implementations or complete design "packages" that can be taken to potential stakeholders.
**Cross-listed with:** ENME401.
**Restriction:** Must have senior standing and permission of instructor.
**Credit Only Granted for:** ENME401, ENME489B or ENES401.
**Formerly:** ENME489B.

**ENES424 Engineering Leadership Capstone: Inclusive Leadership in Addressing Organizational & Societal Challenges (3 Credits)**
The Minor in Global Engineering Leadership is designed to bring together one's understanding of leadership, organizations, culture, and global studies and apply this synthesized learning to a capstone project. The project will provide real-world application of global leadership principles to address an organizational or societal need. Students will utilize an inclusive leadership and global mindset to propose a big idea which brings about a positive organizational or societal change.
**Prerequisite:** ENES472 and ENES317.
**Restriction:** Must be in the Global Engineering Leadership minor (#EN09).

**ENES428 Engineering Research for Exchange Students (3-12 Credits)**
Directed research within the Clark School of Engineering for international exchange students.
**Restriction:** Available only to visiting exchange students taking part in an Engineering exchange program.
**Repeatable to:** 24 credits.

**ENES440 Science, Technology, Ethics, and Policy: Minor Program Capstone (3 Credits)**
Capstone research seminar for students in the Science, Technology, Ethics, and Policy Minor program.
**Prerequisite:** ENES240 and 2 courses from the STEP minor elective list.
**Restriction:** Must be in the Science, Technology, Ethics, and Policy minor.
**Additional Information:** This is the culminating course the STEP minor program.

**ENES458 Topics in International Engineering (1-4 Credits)**
A variety of topics related to engineering in a global context are discussed including cultural aspects, cross-cultural communication, international standards and law, and engineering and technology issues, business behavior, attitudes and values of selected countries and regions.
**Prerequisite:** ENES100.
**Repeatable to:** 12 credits if content differs.

**ENES459 Study Abroad Special Topics in Engineering IV (1-6 Credits)**
Special topics course in engineering science taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ENES460 Fundamentals of Technology Start-Up Ventures (3 Credits)**
Fundamental aspects of creating, organizing, funding, managing, and growing a technology startup venture. This multidisciplinary course will draw on management, business, legal, financial, as well as technical, concepts. Students form teams and develop a business plan for a technology company, based on each team's own business idea and then present the plan to a panel of outside experts.
**Restriction:** Permission of ENGR-Maryland Technology Enterprise Institute.
**Credit Only Granted for:** ENES460, BMGT461, SMLP470 or HLMN470.
**Additional Information:** Course may not be used to fulfill any BMGT major or minor program requirement.

**ENES461 Advanced Entrepreneurial Opportunity Analysis in Technology Ventures (3 Credits)**
Explores the factors that influence entrepreneurial opportunity analysis in technology-based ventures. Uses a cognitive theoretical framework to examine the integration of motivation, emotions and information processing modes to make complex entrepreneurial decisions in technology venture environments.
**Credit Only Granted for:** ENES210 or ENES461.

**ENES462 Marketing High-Technology Products and Innovations (3 Credits)**
Examines the opportunities and challenges of marketing high-technology products in turbulent environments requiring rapid decision making with incomplete information. Explores how innovations are introduced at frequent intervals, research-and-development spending is vital, and there are high mortality rates for both products and businesses.
**Restriction:** Permission of ENGR-Maryland Technology Enterprise Institute.
**Additional Information:** Course may not be used to fulfill any BMGT major or minor program requirement.

**ENES463 Strategies for Managing Innovation (3 Credits)**
Emphasizes how the technology entrepreneur can use strategic management of innovation and technology to enhance firm performance. Examines the process of technological change, the ways that firms come up with innovations, the strategies that firms use to benefit from innovation, and the process of formulating technology strategy. Provides frameworks for analyzing key aspects of these industries and teaches students how to apply these frameworks.
**Restriction:** Permission of ENGR-Maryland Technology Enterprise Institute.
**Credit Only Granted for:** ENES463, BMGT467, SMLP473 or HLMN472.
**Additional Information:** Course may not be used to fulfill any BMGT major or minor program requirement.

**ENES464 International Entrepreneurship and Innovation (3 Credits)**
Focuses on the need for every entrepreneur and innovator to understand the global market in today's hypercompetitive world, and to appreciate how to compete effectively in domestic markets by managing international competitors, suppliers, and influences. Explore how the distinction between foreign and domestic markets is becoming less pronounced. Develop skills to identify and manage opportunities on a global basis.
**Restriction:** Permission of ENGR-Maryland Technology Enterprise Institute.
**Additional Information:** Course may not be used to fulfill any BMGT major or minor program requirement.

**ENES466 Leading and Financing the Technology Venture (3 Credits)**
Focuses on the challenges of leading and financing new technology ventures. Leadership topics include team selection and formation, aligning rewards with relative contributions of team members, and how early decisions can enable or prevent founders from achieving results that align with their individual motivations for becoming an entrepreneur. Essential tools and methods for building a strong financial foundation for a new technology venture are examined. Includes important accounting principles as well as methods for keeping financial control of the technology venture. Insights are shared on navigating the multitude of financial barriers that may block your entrepreneurial success, as well as how to grow the technology venture from concept through launch.
**Restriction:** Permission of ENGR-Maryland Technology Enterprise Institute.
**Credit Only Granted for:** ENES466, BMGT365, SMLP471 or HLMN471.
**Additional Information:** Course may not be used to fulfill any BMGT major or minor program requirement.

**ENES467 Engineering for Social Change (3 Credits)**
Critical analysis of issues at the intersection of engineering, philanthropy and social change. How engineering design, products and processes have created social change in the past and will do so in the future through both intended and unintended consequences. Topics covered include energy, sustainability and climate change, autonomy, the digital future, low cost engineering, manufacturing, philanthropy, ethics and the impact of electronics on society, among others. Faculty and external experts will engage with students on these topics. Students will broadly engage with organizations involved in using technology for positive social impact.
**Cross-listed with:** ENME467.
**Restriction:** Must not be in Engineering: Mechanical program; and junior standing or higher; and must be in a major in ENGR-A. James Clark School of Engineering.
**Credit Only Granted for:** ENES467 or ENME467.

**ENES471 Legal Aspects of Entrepreneurship (3 Credits)**
Explores critical legal and business issues entrepreneurs face as they build and launch a new venture. Examines real world scenarios, and addresses the legal issues at all of the important junctures along the path to success. Significant attention placed on new venture formation, intellectual property management, and financing arrangements.
**Additional Information:** Course may not be used to fulfill any BMGT major or minor program requirement.

**ENES472 Leading Global Teams and Engaging Across Cultures in Business, Engineering, and Technology (3 Credits)**
Develop global leadership capacities and an understanding of the cultural aspects pertaining to industry and international business. In a globalized world, the ability to work, lead and communicate in culturally diverse settings has become a core component to leadership. Through real-world examples, research, and simulations, students will increase their self-awareness and understanding of culture and how culture influences attitudes, behaviors, and practices at the individual, organizational, or societal levels. Students will develop the skills necessary to navigate, negotiate, and lead cross-cultural engagements and teams. The course content is relevant and applicable to anyone interested in developing cross-cultural leadership competencies and cultivating a global mindset.
**Restriction:** Sophomore standing or higher; must be a minor in Global Engineering Leadership (#EN09), Global Poverty (#AG06), Global Terrorism Studies (#BS07), or International Development and Conflict Management (#BS02).
**Credit Only Granted for:** ENES472, SLLC471, or SLLC473.
**Additional Information:** Students not meeting restriction requirements should add themselves to the course holdfile. Restrictions DO NOT apply to winter and summer terms.

**ENES474 Global Perspectives of Engineering (3 Credits)**
Faculty supervised research on aspects of engineering in a foreign country including leading fields of research, key world markets, and the culture of the engineering workplace. Students will produce a comprehensive report exhibiting their expertise in their chosen country and the field of engineering within.
**Prerequisite:** ENES100; or permission of ENGR-A. James Clark School of Engineering.
**Restriction:** Must be in the International Engineering Minor.
**Credit Only Granted for:** ENES458M or ENES474.
**Formerly:** ENES458M.

**ENES475 Leadership in Times of Crisis: Pandemics, Disasters, and Humanitarian Crises (3 Credits)**
Students are provided with immersive opportunities to learn from industry professionals about crisis prevention and response by examining leadership throughout the crisis cycle: from identification, prevention, and preparation, to response, recovery, and rebuilding. The course brings together the study and practice of leadership with promising practices in disaster preparedness and data informed decision-making. This course will examine how leadership has been enacted to help local, national, and global communities navigate through pandemics, disasters, and other humanitarian crises. Students will develop capacities for informed leadership in times of crisis and develop an understanding for applying these skills in a variety of settings.
**Restriction:** Must have earned a minimum of 60 credits.
**Credit Only Granted for:** ENES275 or ENES475.

**ENES478 Topics in Engineering Education (1 Credit)**
Topics related to teaching engineering courses, particularly project-based courses. Topics can include learning styles, student development theory, multicultural issues in teaching, facilitating team experiences, assessment, and academic integrity.
**Restriction:** Must be in the Engineering Teaching Fellow program.
**Repeatable to:** 3 credits if content differs.

**ENES480 Engineering Honors Seminar I (1 Credit)**
Introduction to engineering leadership, professionalism, and ethics. Discussions of leadership style, elements of success, professional communication, codes of ethics, handling of ethical dilemmas, and the characteristics of a professional.
**Restriction:** Must be in College of Engineering Honors; and junior standing or higher.

**ENES481 Engineering Honors Seminar II (1 Credit)**
Introduction to engineering creativity and innovation in engineering. Application of methods of creativity to topics in communication, conducting research, and leadership.
**Restriction:** Must be in College of Engineering Honors; and junior standing or higher.

**ENES489 Special Topics in Engineering (3-6 Credits)**
Special topics in engineering.
**Prerequisite:** Permission of ENGR-A. James Clark School of Engineering.
**Repeatable to:** 6 credits if content differs.

**ENES490 QUEST Capstone Professional Practicum (4 Credits)**
The capstone course for the QUEST Honors Program provides students with an opportunity to learn in multidisciplinary teams of business, engineering, and science students in a real-world setting. Companies engage teams of QUEST students with real organizational challenges and dedicate resources to help students address these problems. Student teams must enhance their skills in quality management, process improvement, and systems design and will apply these to add value to a client. In the process, students will improve their teamwork skills.
**Prerequisite:** ENES390 or BMGT390.
**Cross-listed with:** BMGT490.
**Credit Only Granted for:** BMGT490 or ENES490.

**ENES491 Scoping Experiential Learning Projects (3 Credits)**
QUEST students cultivate relationships with new and current corporate partners and prepare project scopes for QUEST's introductory course, BMGT/ENES 190H, and capstone course, BMGT/ENES 490H. Requires independent work communicating with clients and class visits to a variety of potential project sites.
**Prerequisite:** BMGT190 or ENES190.
**Cross-listed with:** BMGT491.
**Restriction:** Restricted to QUEST Program (TQMP) students.
**Credit Only Granted for:** BMGT491 or ENES491.

**ENES498 Special Topics in Entrepreneurship (3 Credits)**
This entrepreneurship seminar and case study-based course will explore technology entrepreneurship with a focus on leadership, marketing, team-building, and management of new technology ventures and assumes baseline knowledge of entrepreneurship. Students will learn skills needed to succeed as a technology entrepreneur and how to apply best practices for planning, launching, and growing new companies. This course is a requirement of the Hinman CEOs program.
**Restriction:** Must be in Hinman CEOs Program.
**Repeatable to:** 12 credits if content differs.

**ENES499 Senior Projects in Engineering (3 Credits)**
Students will work in large teams to solve a multidisciplinary research/design problem. The course will begin with students identifying opportunities, brainstorming project concepts to address these opportunities, applying lean startup and design thinking strategies, and then selecting/proposing a project for the semester. Acceptable projects will require the multidisciplinary design, construction and testing of a project within limited budget and time constraints.
**Prerequisite:** Permission of ENGR-A. James Clark School of Engineering; and completion of all 1XX and 2xx level (lower-division) technical courses in engineering major with a C- or better.
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering.
**Repeatable to:** 6 credits if content differs.

# ENFP - Engineering, Fire Protection

**ENFP101 Introduction to Fire Protection Engineering (1 Credit)**
This course will introduce students to the impact of fire on people, property and the environment and methods to mitigate the threat of fire. Student teams will apply the principles of fire behavior and fire safety systems covered in the first half of the course to design, build and test a fire safe, small-scale apartment. A final experiment will be conducted to provide an assessment of the complete designs of each team.
**Restriction:** Permission of ENGR-Fire Protection Engineering department.
**Credit Only Granted for:** ENFP108 or ENFP101.
**Formerly:** ENFP108.

**ENFP201 Numerical Methods with MatLab (3 Credits)**
A broad range of numerical methods are illustrated and applications related to engineering problems are implemented using Mat Lab thus providing a working knowledge of this computational tool. The topics covered in the course include: finding roots of equations with bracketing and open methods; solving linear systems of equations with matrices, Gauss elimination, LU decomposition, and iterative methods; linear regression, polynomial interpolation; numerical integration and numerical differentiation; ordinary and partial differential equations. Additional topics such as optimization, eigenvalues, Fourier analysis, splines, and Romberg integration may be included as time allows.
**Prerequisite:** MATH141.
**Restriction:** Must be in Engineering: Fire Protection program.

**ENFP250 Introduction to Life Safety Analysis (3 Credits)**
Introduction to fire protection engineering and building regulation focusing on building safety systems, egress system design and evacuation modeling.
**Prerequisite:** Permission of ENGR-Fire Protection Engineering department.
**Credit Only Granted for:** ENFP250 or ENFP251.
**Formerly:** ENFP251.

**ENFP300 Fire Protection Fluid Mechanics (3 Credits)**
Presents students with the fundamental properties of fluids and fluid movement. Both static and dynamic fluid problems will be considered with an emphasis on fire protection systems.
**Prerequisite:** MATH246 and ENFP201; and must have completed or be concurrently enrolled in PHYS260, PHYS261.
**Restriction:** Permission of ENGR-Fire Protection Engineering department.
**Credit Only Granted for:** BIOE331, ENCE305, ENFP300, or ENME331.

**ENFP310 Water Based Fire Protection Systems Design (3 Credits)**
Introduction to aqueous fire suppression. Discussion of key fluid dynamics and heat transfer processes in aqueous fire suppression. System design and performance analysis based on national standards, hydraulic theory and elementary fluid dynamics and heat transfer.
**Prerequisite:** ENFP300.
**Corequisite:** ENFP312.
**Restriction:** Permission of ENGR-Fire Protection Engineering department.

**ENFP312 Heat and Mass Transfer (3 Credits)**
Fundamentals of heat and mass transfer. Conduction, convection, and radiation modes of heat transfer. Diffusion concepts and evaporation phenomena. Problem solving techniques with application to fire problems.
**Prerequisite:** ENES232 and ENFP300.
**Restriction:** Permission of ENGR-Fire Protection Engineering department.
**Credit Only Granted for:** ENFP312 or ENME332.

**ENFP350 Professional Development Seminar (1 Credit)**
An integrative, upper level professional development seminar covering topics such as engineering ethics, professional licensing, codes and standards, intellectual property, career selection and various contemporary issues in fire protection engineering.
**Prerequisite:** Permission of ENGR-Fire Protection Engineering department.
**Restriction:** Junior standing or higher.

**ENFP405 Structural Fire Protection (3 Credits)**
Effects of elevated temperature on structural materials; steel, concrete, wood, gypsum, glass and reinforced plastics. Experimental evaluation of fire resistance of building assemblies. Analytical methods to evaluate fire resistance of structural members.
**Prerequisite:** ENES220.
**Restriction:** Must be in Engineering: Fire Protection program; and permission of ENGR-Fire Protection Engineering department.
**Credit Only Granted for:** ENFP405 or ENFP621.

**ENFP410 Special Hazard Suppression Systems (3 Credits)**
Analysis of application and theory of fire suppression systems. The key elements of fire suppression systems will be discussed along with how they interact for effective fire suppression design. Physical mechanisms for a variety of fire suppression approaches will be discussed including hose streams, sprinklers, water mist, foam, clean agents, and chemical agents.
**Prerequisite:** ENFP310 and ENFP312.
**Jointly offered with:** ENFP610.
**Restriction:** Permission of ENGR-Fire Protection Engineering department.
**Credit Only Granted for:** ENFP410, ENFP610 or ENFP653.

**ENFP411 Risk-Informed Performance Based Design (3 Credits)**
Appraisal and measurement of fire safety. Application of systems analysis, probability theory, engineering economy and risk management in the identification and synthesis of components of fire protection engineering. Methods for the development of criteria for the design, evaluation and assessment of fire safety or component hazards.
**Restriction:** Senior standing; or permission of ENGR-Fire Protection Engineering department.

**ENFP413 Human Response to Fire (3 Credits)**
Fractional effective dose (FED) methods for predicting time to incapacitation and death of fires for use in fire safety calculations. Physiology and toxicology of the fire effluent components, decomposition chemistry of common materials, standard experimental approaches. Predictive models of material production rates. People movement characteristics related to building evacuation. Formulation and application of evacuation models. Human behavior factors affecting response of people to fire situations.
**Prerequisite:** ENFP250.
**Restriction:** Permission of ENGR-Fire Protection Engineering department. Jointly offered with ENFP613.
**Credit Only Granted for:** ENFP413 or ENFP613.

**ENFP415 Fire Dynamics (3 Credits)**
Designed to give students a quantitative understanding of fire behavior. The fundamentals of physics and chemistry of combustion are presented and used to derive key analytical relationships that describe fire growth. Application of these relationships to the analysis of common fire scenarios is emphasized.
**Prerequisite:** ENFP312.
**Restriction:** Permission of ENGR-Fire Protection Engineering department. Jointly offered with ENFP651.
**Credit Only Granted for:** ENFP415 or ENFP651.

**ENFP420 Fire Assessment Methods and Laboratory (4 Credits)**
Experimental evaluation of ignition, flame spread, rate of heat release and smoke production of flammable gases, liquids, solids, and interior finish materials. Analytical and computer methods for the design, performance, and analysis of fire experiments. Preparation of laboratory reports.
**Prerequisite:** Student must have senior standing; and minimum grade of C- in ENFP312.
**Restriction:** Must be in Engineering: Fire Protection program.
**Credit Only Granted for:** ENFP320 or ENFP420.
**Formerly:** ENFP320.

**ENFP425 Enclosure Fire Modeling (3 Credits)**
An introduction to enclosure fire dynamics through the development of fire modeling algorithms and the application of computer-based fire modeling techniques. The objectives of the course are: to provide a basic understanding of enclosure fire dynamics with an emphasis on a system-level viewpoint (i.e., a global description of the coupling between combustion dynamics, smoke filling, vent flows and heat transfer); and to provide an introduction to the zone modeling approach. Topics covered include a review of the mathematical formulation of zone models, a discussion of numerical integration of the zone modeling equations (using MATLAB), and an introduction to zone modeling software used by professional engineers (e.g., CFAST).
**Prerequisite:** ENES232, ENFP300, and ENFP312.
**Restriction:** Must be in Engineering: Fire Protection program; and senior standing; and permission of ENGR-Fire Protection Engineering department.

**ENFP426 Computational Methods in Fire Protection (3 Credits)**
Introduction to computer-based fire modeling: zone modeling and Computational Fluid Dynamics (CFD); documentation of input data, validation and verification tests.
**Recommended:** ENFP425.
**Restriction:** Permission of ENGR-Fire Protection Engineering department.

**ENFP429 Independent Studies (1-3 Credits)**
For students who have definite plans for individual study of approved problems, or study of an advanced topic selected in conjunction with the faculty.
**Prerequisite:** Permission of ENGR-Fire Protection Engineering department.
**Restriction:** Must be in Engineering: Fire Protection program.
**Repeatable to:** 6 credits if content differs.

**ENFP440 Smoke Management and Fire Alarm Systems (3 Credits)**
Analysis of hazard posed by smoke in buildings. Performance characteristics of smoke management systems. Review of analytical design aids. Functional analysis and design of fire detection and alerting systems. Examination and evaluation of code criteria, performance specifications and research.
**Prerequisite:** Must have completed with a C- or better or concurrently be enrolled in ENFP300.
**Jointly offered with:** ENFP627.
**Restriction:** Permission of ENGR-Fire Protection Engineering department.
**Credit Only Granted for:** ENFP440 or ENFP627.

**ENFP461 Think Tank (3 Credits)**
Designed to have the student apply critical thinking in both engineering and business terms through a unique combination of student-driven, competition-based, long-term, targeted learning.
**Recommended:** Junior standing in fire protection engineering.

**ENFP464 Industrial Fire Safety (3 Credits)**
Designed to introduce students to the basics of process safety with a focus on the methods and techniques that may be utilized when evaluating the existing or proposed safety protection solutions in industrial facilities. An emphasis is placed on properly identifying the hazards that are present, the risk exposure, and how best to address the risk. The foundation is laid by presenting the necessary background information on industrial processes and integrating this information with applicable fire/explosion safety science.
**Prerequisite:** Students must be of senior standing.
**Restriction:** Permission of ENGR-Fire Protection Engineering department.
Also offered as: ENFP664.
**Credit Only Granted for:** ENFP464, ENFP489I, ENFP629I OR ENFP664.
**Formerly:** ENFP489I.
**Additional Information:** The course will be taught as a dual senior-level undergraduate course and graduate course.

**ENFP465 Fire and Explosion Investigations (3 Credits)**
This course covers many aspects of fire and explosion investigation and reconstruction. Information on field techniques, applicable standards, and best practices are presented with an emphasis on how fire science and fire dynamics can be applied to forensic analysis. Experiments are performed and analyzed to demonstrate the concepts.
**Prerequisite:** Student should have senior standing.
**Restriction:** Permission of ENGR-Fire Protection Engineering department.
**Credit Only Granted for:** ENFP489N, ENFP629N OR ENFP665.
**Formerly:** ENFP489N.
**Additional Information:** The course will be taught as a shared senior-level undergraduate course and graduate course.

**ENFP467 Wildland Fires: Science and Applications (3 Credits)**
Introduction to the global problem of wildland fires with an overview of the social, political and environmental issues posed as well as detailed coverage of the science, technology and applications used to predict, prevent and suppress wildland fires.
**Prerequisite:** ENFP312.
**Restriction:** Must be in Engineering: Fire Protection program; and permission of ENGR-Fire Protection Engineering department.
**Credit Only Granted for:** ENFP489W, ENFP629W, or ENFP667.
**Formerly:** ENFP489W.

**ENFP489 Special Topics (3 Credits)**
Selected topics of current importance to fire protection.
**Prerequisite:** Permission of ENGR-Fire Protection Engineering department.
**Repeatable to:** 6 credits.

# ENGL - English

**ENGL101 Academic Writing (3 Credits)**
An introductory course in expository writing.
**Additional Information:** Students must complete this course with a minimum grade of C- in order to fulfill the General Education Fundamental Studies Academic Writing requirement.

**ENGL120 Acting Human: Shakespeare and the Drama of Identity (3 Credits)**
Shakespeare's ideas of dramatic realism studied through close examination of literary and dramatic techniques. How Shakespeare generates the fiction of a living, thinking person in the space of five acts, and how readers participate in the making of that fiction. Some attention to Shakespeare on film and what the playwright can teach us about different media.

**ENGL121 The Power of Song: Renaissance Lyric and Its Afterlives (3 Credits)**
Examines the power that song has over its audiences. Drawing on literary, performance, and sound studies, we will investigate how song takes hold of its listeners in uniquely moving ways. We will examine the special appeal of song in early modern England, including works by William Shakespeare, John Milton, and William Byrd. And we will compare the song culture of the English Renaissance to the power of song in contemporary life, from Kendrick Lamar to CocoRosie.

**ENGL125 Why Poetry Matters (3 Credits)**
Poetry is most often understood as self-expression; it's also communal expression, and cultural expression; it's also a particular kind of construction made out of language. Explore the art form called poetry, including its formal properties, its conventions, and its legacy of experimentation. What role does poetry play in how we think about the human condition; what constitutes knowledge and wisdom, interior subjectivity and collective identity; and how shall this knowledge be used in confronting new challenges and the perennial questions: how to live with oneself, and as oneself; in time, and with others; here, where we reside; and elsewhere, where we imagine ourselves going. This is a hands-on course in reading and practicing the art of poetry, including short critical and creative writing exercises.

**ENGL126 Why Fiction Matters (3 Credits)**
Consider how short stories, novellas, and novels are vital to understanding our world and ourselves. Read and analyze a diverse range of twentieth- and twenty-first-century fiction, and apply the techniques of form and craft to your own experiments in fiction writing. Use critical analysis and hands-on creative experimentation to explore how fiction helps us understand the past, engage in the present, and build a better future.

**ENGL130 Race and the Cultural Politics of Blood: A Historical Perspective (3 Credits)**
Exploration of race, as term and concept, at three different historical times and from three different perspectives, through the reading of three stories: William Shakespeare's drama Othello, Aphra Behn's novella Oroonoko, and the short story Benito Cereno by Herman Melville. Exploration of the importance of context in interpretation. Study of how a concept for rationalizing human difference appears and adapts, fuses and fades away, relocates and is repurposed. How understanding of the particular situation of the concept, its context, changes our reading of the story.

**ENGL132 Aliens, Exiles, and Immigrants (3 Credits)**
Exploration of ideas, beliefs, and aspirations that immigrants carry from one nation to another. Different ways of understanding national and cultural identities, and ways the experiences of immigration have changed significantly over time. Readings examine historical and contemporary immigrant writing, including post-9/11 poetry and fiction; memoirs of nineteenth-century British emigrants to South Africa, Australia, and Canada; literature by emigrants from Asia, the Middle East, and Latin America now living in the United States; and writing by individuals displaced by war, famine, and political conflict. Politics of immigration and citizenship; historical and contemporary arguments for and against immigration and assimilation.

**ENGL133 Imagining Nature (3 Credits)**
Who gets to speak for nature? This course explores the long history of environmental writing in the context of the complex relationship between European and Indigenous North American traditions. We will not just survey environmental literature; we will inquire into the pressures under which contemporary ideas of nature evolved from a colonial past. Students will learn about the history of representing other-than-human actors in the world--including Indigenous ways of knowing--and how this history can help us envision new, shared relationships with the natural world.

**ENGL134 The Rites of Discovery: Science, Law, and Literature, 1492-1992 (3 Credits)**
History of idea of "discovery" from sixteenth-century debate about European "rights of discovery" to 500th anniversary, in 1992, of Columbus' landfall in New World. Evolution of modern concept of discovery, both as part of history of science and in legal context of history of European colonialism and cultural encounter with Native peoples of Americas, Africa, and Asia. Exploration of primary and secondary sources relating to international law, science, and literature.

**ENGL140 American Fictions: U.S. Literature, History, Politics, and Constitutional Law (3 Credits)**
Works of American literature explored in the context of major texts and developments of U.S. history, culture, politics, and constitutional law. We begin with the Declaration of Independence and the U.S. Constitution, and survey the course of American literature and history, from 1776 to the present, in relation to defining political and constitutional issues. Readings of canonical works like "Huckleberry Finn" and "The Grapes of Wrath" coupled with special attention to minority authors and issues, and horizons of constitutional contemplation opened up by minority, immigrant, and women's voices and experiences. Key historical and political issues include human rights; equal protection; religious tolerance; democratic principles; republican structures of government; independence; revolution; slavery; removal; immigration; free speech; labor rights; civil rights; feminism; environmentalism; international law and flows of people; economic globalization; technology and digital innovation; and the role that literature and the humanities play in fostering various forms of civil society, multiculturalism, and a globally accountable citizenship.

**ENGL142 Literary Maryland (3 Credits)**
What does the literature of Maryland teach us about our state's past, present, and future? "Literary Maryland" explores this question by taking students on a tour of our state's prose, poetry, and drama from colonization to the present. In addition to reading fascinating writing and visiting interesting places, you'll learn how the Chesapeake was formed; why nobody sings the entire national anthem; and what led Baltimore to name its football team after a poem written by a Virginian.
**Credit Only Granted for:** ENGL142 or ENGL289M.
**Formerly:** ENGL289M.

**ENGL143 Visualizing Knowledge: From Data to Images (3 Credits)**
Explores how technology and people shape our current age of information through the various forms of visually representing information. Visualizations do not show us things that are evident--visualizations make things evident. We will thus examine the history of visualization practices, the theories of image-making that guide their production, and the current state of the art. Students will engage critically with a wide range of information visualization practices to gain an understanding of the work involved in producing them and their histories. Students will also seek out contemporary visualizations, interact with the practitioners who produce them, and produce their own visualization as a response or critique.

**ENGL146 Seeing the Present: Graphic Storytelling in the Age of Social Media (3 Credits)**
We increasingly live in a world dominated by digital images: graphic narratives, data visualizations, tweets, GIFs, and computer animation. Students will learn how to critically analyze this digital visual rhetoric and how to become a skilled user of visual discourse. By examining a range of science fiction, graphic novels, photography, and films, we will develop a critical vocabulary for understanding the possibilities and perils of our digital image culture. We will apply this vocabulary to analyzing visual representations of contemporary political questions including: climate change, criminal justice, bio-technological transformations of the human, and the incorporation of algorithm-based platforms into everyday life.

**ENGL152 What is Justice?: Literature and the Invention of Ethical Imagination (3 Credits)**
Exploration of literature's unique ability to animate human passions underlying ethical dilemmas. How literary texts shape understanding of justice; how plays, novels, and films define, critique, challenge, and even alter society's comprehension of equity and inequity, crime and punishment, pardon and torture, and ideas about civil liberties and human rights. Attention to how writers have described just and unjust within their historical moment; crucial role of imagination in formation of ethical citizens across time.

**ENGL154 Race, Children's Television, and the Legacies of Jim Henson (3 Credits)**
How do children form ideas about race from television? We will approach this question by studying representations of race in children's television from the founding of the animation industry in the 1910s to educational programming epitomized by Sesame Street and the work of Jim Henson. We will also explore representations of race in the "Saturday Morning Cartoon Lineup" and in the subsequent proliferation of computer-generated images, gifs, and memes. Students will visit archives on campus pertaining to Jim Henson's work and reflect on what they find. Assignments will include a paper focused on critical analysis and self-reflection, and students will have the option of completing a multimedia project featuring video production, puppet making, or another creative means of producing a lesson for children.
**Credit Only Granted for:** ENGL154 or ENGL439J.
**Formerly:** ENGL439J.

**ENGL181 English Grammar (1 Credit)**
The basic structure of formal written English, including parts of speech, sentence patterns, standard punctuation, diction, and usage.
**Restriction:** Must not have completed JOUR181 or ENGL181.
**Credit Only Granted for:** ENGL181 or JOUR181.

**ENGL201 Inventing Western Literature: Ancient and Medieval Traditions (3 Credits)**
Wide range of texts, genres, and themes from ancient and medieval Western traditions. Study of cultural, historical, and artistic forces shaping traditions, and the influence and relevance of those traditions to life in twenty-first century.

**ENGL202 Inventing Western Literature: Renaissance to Modern (3 Credits)**
Wide range of texts from the Renaissance to the 21st century. Themes and literary techniques in the evolution of Western literature. Print publication, industrialization, questioning of religious, political, intellectual, and cultural authority.

**ENGL211 English Literature: Beginnings to 1800 (3 Credits)**
Surveys medieval and early modern literary works written in England. Readings may include Beowulf, Chaucer, Spenser, Mary Wroth, Milton; eighteenth-century satire, drama, novels.

**ENGL212 English Literature: 1800 to the Present (3 Credits)**
Surveys the major literary movements of the period, from Romantic to Victorian to Modern. Such authors as Wordsworth, Keats, Bronte, Tennyson, Browning, Yeats, Joyce, Woolf.

**ENGL222 American Literature(s) (3 Credits)**
Explore American literary traditions in a variety of poetic and narrative forms and in diverse historical contexts, ranging from colonization to the Civil Rights Movement and beyond. Genres examined in this course might include lyric poems, travel narratives, gothic short fiction, slave narratives, and science fiction. Emphasis on developing skills of literary interpretation and critical writing, while attending to the place of race, class, gender, and sexuality in American literary culture. Authors may include Phillis Wheatley, Herman Melville, Walt Whitman, Emily Dickinson, Frederick Douglass, Gertrude Stein, F. Scott Fitzgerald, James Baldwin, and Toni Morrison, among others.

**ENGL233 Introduction to Asian American Literature (3 Credits)**
A survey of Asian American literature with an emphasis on recurrent themes and historical context.
**Cross-listed with:** AAST233.
**Credit Only Granted for:** ENGL233 or AAST233.

**ENGL234 African-American Literature and Culture (3 Credits)**
An exploration of the stories black authors tell about themselves, their communities, and the nation as informed by time and place, gender, sexuality, and class. African American perspective themes such as art, childhood, sexuality, marriage, alienation and mortality, as well as representations of slavery, Reconstruction, racial violence and the Nadir, legalized racism and segregation, black patriotism and black ex-patriots, the optimism of integration, and the prospects of a post-racial America.
**Cross-listed with:** AASP298L.
**Credit Only Granted for:** ENGL234 or AASP298L.

**ENGL235 U.S. Latinx Literature and Culture (3 Credits)**
Examines the poetry, prose, and theater of Latinx communities in the United States from their origins in the Spanish colonization of North America to their ongoing development in the 21st century. Considers how authors use literary form to gain insight into human experience, including mortality, religious belief, gender and sexuality, war and peace, family, language use, scientific inquiry, cultural tradition, ecology, and labor. Also studies how Latinx literary traditions have shaped and been shaped by broader currents in American literature, as well as what connections exist between Latinx literature and social and artistic developments in other parts of the world, particularly Latin America and the Caribbean. Authors may include Alvar Nunez Cabeza de Vaca, Eulalia Perez, Juan Nepomuceno Seguin, Maria Amparo Ruiz de Burton, Jose Marti, Arthur A. Schomburg, Jesus Colon, Julia de Burgos, Cesar Chavez, Ariel Dorfman, Gloria Anzaldua, Junot Diaz, and Cristina Garcia.
**Cross-listed with:** AMST298Q.
**Credit Only Granted for:** ENGL235 or AMST298Q.

**ENGL240 Introduction to Fiction, Poetry, and Drama (3 Credits)**
Readings in the novel, short story, poetry and drama.

**ENGL241 What the Novel Does (3 Credits)**
An exploration of what the novel does that cannot be done by film, by television, by cell-phone screens, by any stream of images, or by textual excerpts pulled up for a quick read. The different ways of the novel, with particular focus on the process of thinking and the developed consciousness. The novel as a machine to think with and an irreplaceable model of complex human thought. Study of how thought is presented in radically different ways in novels that cross lines of class, gender, chronology, and nationality.

**ENGL243 What is Poetry? (3 Credits)**
An exploration of arguably the most complex, profound, and ubiquitous expression of human experience. Study through close reading of significant forms and conventions of Western poetic tradition. Poetry's roots in oral and folk traditions and connections to popular song forms.

**ENGL244 The Play's the Thing (3 Credits)**
Exploration of drama through a consideration of plot, narrative flow, analytical flow, staging, performance, manuscript and printing history, text and textual change over time, and interpretation. Plays will be approached as public attempts to understand what it means to be alive.

**ENGL245 Film Form and Culture (3 Credits)**
Introduction to film as art form and how films create meaning. Basic film terminology; fundamental principles of film form, film narrative, and film history. Examination of film technique and style over past one hundred years. Social and economic functions of film within broader institutional, economic, and cultural contexts.
**Cross-listed with:** CINE245.
**Credit Only Granted for:** ENGL245, CINE245 or FILM245.
**Formerly:** FILM245.

**ENGL246 Introduction to the Short Story (3 Credits)**
A survey of the genre, with a focus on significant elements, such as plot, character, description, style, and theme. Readings will be drawn from a range of cultures and communities.

**ENGL250 Reading Women Writing (3 Credits)**
Explores literary and cultural expressions by women and their receptions within a range of historical periods and genres. Topics such as what does a woman need in order to write, what role does gender play in the production, consumption, and interpretation of texts, and to what extent do women comprise a distinct literary subculture. Interpretation of texts will be guided by feminist and gender theory, ways of reading that have emerged as important to literary studies over the last four decades.
**Cross-listed with:** WGSS255.
**Credit Only Granted for:** ENGL250, WMST255 or WGSS255.
**Formerly:** WMST255.

**ENGL251 Detective Fiction (3 Credits)**
Explore "whodunnit" fiction from its nineteenth-century beginnings to the contemporary moment. Why are readers intrigued by the methodical discovery of the exact circumstances of a mysterious event? How does the figure of the eccentric, intelligent, often unofficial investigator take prominence? How does detective fiction emerge from and react to global imperialism, the modern metropolis, forensic science, and the modern legal system? How does the genre represent and respond to gender, class, and racial inequities? Texts may range from the works of Edgar Allan Poe and Arthur Conan Doyle, to the "Golden Age of Detective Fiction" in the 1920s and 30s by writers such as Agatha Christie, to late-twentieth century and contemporary novelists such as Chester Himes, P.D. James, and Mia P. Manansala, to film and television adaptations such as Enola Holmes, See How They Run, and Kenneth Branagh's Hercule Poirot films.

**ENGL254 Introduction to Humanities, Health, and Medicine (3 Credits)**
An overview of the historical, cultural, ethical, and spiritual dimensions of medicine, human health, disease, and death from the points of view of various humanistic disciplines.
**Cross-listed with:** ARHU230, HIST219N, WGSS230.
**Restriction:** Permission of ARHU-English Department.
**Credit Only Granted for:** ARHU230 , ENGL289C, ENGL254, ARHU298A, HIST219N, or WGSS230.

**ENGL255 Literature of Science and Technology (3 Credits)**
Examines science and technology through the lens of British and American literature, primarily between 1800 and the present. Readings from early natural and experimental philosophers of the Scientific Revolution and Enlightenment. How literary works represent the ethics of science and technology; beneficial developments of science, and also heavy toll of industrialization. Writers studied may include Francis Bacon, Mary Shelley, Charles Darwin, H.G. Wells, Albert Einstein, Aldous Huxley, Richard Feynman, Philip K. Dick, Octavia Butler, Michael Frayn, and Tom Stoppard.

**ENGL256 Fantasy Literature (3 Credits)**
How fantasy employs alternate forms of representation, such as the fantastical, estranging, or impossible, which other genres would not allow. Through novels, short stories, graphic novels, and film, traces fantasy's roots in mythology and folklore, then explores how modern texts build upon or challenge these origins. Examination of literary strategies texts use to represent the world through speculative modes. How to distinguish fantasy from, and relate it to, other genres such as science fiction, horror, fairly tales, and magical realism. Fantasy's investment in world-building, history, tradition, and categories of identity such as race, class, and gender. How fantasy, as a genre, form, and world-view, is well-suited to our contemporary reality.

**ENGL257 Children's Literature (3 Credits)**
Literature of the nineteenth through the twenty-first century concerned with, and written for, children and young adults. How such narratives speak to themes of changing social, religious, political, and personal identity. Through poetry, novels, graphic novels, and film, explores how children's tales encapsulate and reflect on human existence, while pushing boundaries of what constitutes "children's literature" and what exactly defines the "child." Considers questions of literary classification through investigation of political and religious issues, gender politics, animal rights, social justice, race, war, and what it means to "grow up."

**ENGL262 Introduction to the Hebrew Bible/Old Testament (3 Credits)**
Origins of the Hebrew Bible (Old Testament), with attention to literary formations, archaeology, and social-political settings. Explorations of major questions, including who wrote the Bible, and when; relationships of the biblical tradition to the mythology and religious structures of ancient Israel's near eastern neighbors; and dynamics of politics, religious leadership, and law.
**Cross-listed with:** JWST262, HEBR298B.
**Credit Only Granted for:** JWST262, HEBR298B, or ENGL262.

**ENGL264 What Are the Liberal Arts? (3 Credits)**
Explore what we call "the liberal arts" and "the humanities," which have historically formed the foundations of higher education. What is the role of learning in human life, and what are the ultimate ends of education? How does the idea of a liberal arts education take shape--from ancient Greece, to the medieval world, to the post-Enlightenment explosion of the sciences, to the modern disciplines of the humanities? What can you expect from the humanities curriculum at the University of Maryland, as opposed to a liberal arts college such as St. Johns College in Annapolis?

**ENGL265 LGBTQ+ Literatures and Media (3 Credits)**
A study of literary and cultural expressions of queer and trans identities, positionalities, and analytics through an exploration of literature, art, and media. We will examine historical and political power relations by considering the intersections of sexuality and gender with race, class, nation, and disability. Topics include the social construction and regulation of sexuality and gender, performance and performativity, intersectionality, and the relationship between aesthetic forms and queer/trans subjectivity. Our interpretations will be informed by queer and trans theories.
**Cross-listed with:** LGBT265.
**Restriction:** Must not have completed LGBT265.
**Credit Only Granted for:** ENGL265 or LGBT265.

**ENGL269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ENGL269M Morocco: In the Footsteps of the Beat Generation (3 Credits)**
Educates students about the history, culture and socio-political situation in Morocco through the reading of fiction related to this country. The focus will be on the intersection of American and Moroccan culture and will cover film, music and literature. The American perception of the "orient" has historically been channeled through the French characterization of Arab societies in North Africa. This course aims to disentangle this western mythology from reality in Morocco. Some of the themes addressed will be globalization, colonialism, racism, orientalism, and women's oppression
**Cross-listed with:** ARHU269A.
**Credit Only Granted for:** ARHU269A or ENGL269M.

**ENGL271 Writing Poems and Stories: An Introductory Workshop (3 Credits)**
Introduction to theory and practice of writing fiction and poetry. Emphasis on critical reading of literary models. Exercises and workshop discussions with continual reference to modeling, drafting, and revising as necessary stages in a creative process.

**ENGL272 Writing Fiction: A Beginning Workshop (3 Credits)**
Introduction to theory and practice of writing fiction. Emphasis on critical reading of literary models. Exercises and workshop discussions with continual reference to modeling, drafting, and revising as necessary stages in a creative process.

**ENGL273 Writing Poetry: A Beginning Workshop (3 Credits)**
Introduction to theory and practice of writing poetry. Emphasis on critical reading of literary models. Exercises and workshop discussions with continual reference to modeling, drafting, and revising as necessary stages in a creative process.

**ENGL274 Creative Writing Through The Eyes of African Americans: A Beginning Workshop (3 Credits)**
Introduction to theory and practice of writing fiction, drama and poetry, with an emphasis on African American literary models. Critical reading, exercises and workshop discussions with continual reference to modeling, drafting, and revising as necessary stages in a creative process.
**Restriction:** Must not have completed ENGL271, ENGL274, ENGL294,or AASP274. Cross-listed with AASP274.
**Credit Only Granted for:** ENGL274 or AASP274.

**ENGL275 Scriptwriting for Theater, Film, and Television (3 Credits)**
Introduction to the theory and practice of scriptwriting with an opportunity to read, view, evaluate, write, and revise texts meant to be performed. Students will practice writing for the stage, film, and television and also examine selected scripts, performances, and film and television clips as models for their own creative work. Students will complete frequent writing exercises, participate in workshops, and learn to apply scholarship to the analysis and critique of scripts.
**Cross-listed with:** ARHU275.
**Credit Only Granted for:** ENGL275 or ARHU275.

**ENGL278 Special Topics in Literature (3 Credits)**
**Repeatable to:** 9 credits if content differs.

**ENGL280 The English Language (3 Credits)**
Introduction to the structure of English and its historical development, with a focus on techniques of linguistic analysis. Major topics include the sound systems of English and its patterns of word formation and sentence structure, and the ways these have changed over time and vary around the world.

**ENGL281 Standard English Grammar, Usage, and Diction (3 Credits)**
Study of the structures and patterns of English grammar. The focus is on the standard dialect and contemporary usage, but we will also explore variation over time and across dialects. Includes word formation, sentence elements and structures, and conventions of punctuation, as well as the social aspects of grammatical choices.

**ENGL282 How Rhetoric Works: Persuasive Power and Strategies (3 Credits)**
Examines how persuasion functions and influences our lives and perception, focusing on a variety of contexts: business, politics, media, law, and entertainment. Students learn persuasive and argumentative principles to understand what rhetoric is, how it works, and what it does, and to apply the knowledge to produce effective communication appropriate for their purpose, audience, and context. A wide range of persuasive media, genres, and forms will be studied to help students sharpen how they interpret and practice persuasion.

**ENGL289 Special Topics in English (3 Credits)**
Introduces students to notable themes and approaches in English studies. Topics vary by section and semester.
**Repeatable to:** 12 credits if content differs.

**ENGL289J Monsters and Racism: Black Horror and Speculative Fiction (3 Credits)**
The previous decade has been considered a renaissance for Black Horror. From Get Out to Lovecraft Country, the genre has enjoyed unprecedented mainstream media buzz and accolades. This course looks at contemporary Black horror and speculative fiction as cultural texts which put into question our notions of human(e) and inhuman(e) through critiques of white supremacy and accompanying oppressions. Students will learn a host of critical skills through close reading and analysis of literature and film by Black creators such as Jordan Peele, Misha Green, Toni Morrison, Jewelle Gomez, and Octavia Butler. With the ability to interpret cultural texts using literary criticism, film analysis, history, cultural studies, ethnic studies, feminist theory, and the social sciences, students will connect these texts to continuing historical and contemporary issues of racial and cultural oppression such as medical discrimination, policing and criminalization, misogynoir, and racialized capitalism.
**Cross-listed with:** WGSS271, AAAS271.
**Credit Only Granted for:** AAAS271, ENGL289J, HONR299Y, HNUH238W, WGSS271 or WGSS298W.
**Formerly:** HNUH238W.

**ENGL290 Introduction to Digital Studies (3 Credits)**
Introductory course in digital studies. Surveys contemporary humanities work in digital technologies, including the web and social media and their historical antecedents. Explores design and making as analytical tools alongside reading and writing. Situates digital media within power and politics and develops critical awareness of how media shape society and ethics. Interdisciplinary approaches to creativity, analysis, and technology. While the course will include hands-on practice, no prior experience of programming, designing, or making required other than a willingness to experiment and play.

**ENGL291 Writing, Revising, Persuading (3 Credits)**
Intermediate-level, writing-intensive course for students who have successfully satisfied the Fundamental Studies Academic Writing requirement but wish to hone skills in analyzing and producing rhetorically attuned, well-styled prose. Deeper study of rhetorical theory and its application to a wide variety of arguments and situations. Additional writing practice, techniques of revision, study of effect of stylistic choices. Topics may include argumentation theory, visual rhetoric, stylistic theory, and writing theory.
**Prerequisite:** Must have satisfied Fundamental Studies Academic Writing requirement.

**ENGL292 Writing for Change (3 Credits)**
Service learning in collaboration with students at area high schools. Explores how writing can be a tool for social change. Participants serve as mentors, create a performance event concerning a pressing social issue, and compose reflections, literacy narratives, publicity materials, and a multimodal project. Focus on developing critical self-awareness.
**Prerequisite:** Permission of ARHU-English department.
**Recommended:** ENGL101.
**Jointly offered with:** ENGL388C.
**Restriction:** Requires application and references.
**Credit Only Granted for:** ENGL292 or ENGL388C.

**ENGL293 Writing in the Wireless World (3 Credits)**
A hands-on exploration of writing at the intersection of technology and rhetoric. Students will learn to read, analyze, and compose the kinds of multimodal documents--documents combining text, image, and sound--that constitute communication in our digital world.
**Recommended:** ENGL101.

**ENGL294 Persuasion and Cleverness in Social Media (3 Credits)**
Exploration of various persuasive media encountered in daily life through the lens of rhetorical and critical theories. Principles of rhetoric and analysis of how persuasion functions across media. Invention of effective multimedia works appropriate to purpose, audience, and context. Concepts from cultural studies used to develop critical awareness about power and ideology and how they influence the way people produce and understand messages. By integration of technology, rhetoric, and cultural studies, students become more critically-rhetorically informed thinkers, authors, and audiences of arguments and culture in the digital age. Writing intensive course. No prior multimedia experience is expected.
**Prerequisite:** Must have satisfied Fundamental Studies Academic Writing requirement.

**ENGL295 Introduction to Digital Storytelling and Poetics (3 Credits)**
What is the thread weaving through an animated visualization of economic data in a popular newspaper, an indie text-based videogame, a saucy twitter bot spitting out haikus, and an interactive digital essay? Storytelling--using whatever is at hand to communicate with audiences in evocative and connected ways. Combining technical and textual analysis with their own experiments in digital composition, students will learn to use new media techniques for the interpretation, creation, and dissemination of both critical and imaginative writing. From branching narratives to hypertext media and video games, to more recent developments in machine-generated poetry, XR, and embodied and location-based narrative, the methods and materials in this introductory course link creative expression and analysis of texts to contemporary conversations about social difference, representation, interface, and computation.

**ENGL296 Reading and Writing Disability (3 Credits)**
Locates and analyzes disability in various settings, modes, and texts. Investigates the material and cultural effects of the language, stories, and myths of disability. Explores the many definitions and frameworks of disability: as dynamic lived experiences, as a political identity, as a rich culture, as socially constructed barriers, and as an oppressed minority group. Examines how disability is portrayed, controlled, stereotyped, and celebrated across social, medical, political, cultural, and personal networks.

**ENGL297 Research and Writing in the Workplace (3 Credits)**
Introduction to the rhetorical principles and professional practices of professional writing, particularly the research, writing, communication, analytical, and technological skills needed for the Professional Writing minor. How culture and technology relate to the work of professional writing; design principles and rhetorical moves; digital tools, research skills, and writing strategies of professional writers. Develops skills needed to publish a writing portfolio that showcases students' professional writing competencies and projects their professional writer identities.
**Prerequisite:** ENGL101.

**ENGL301 This is English: Fields and Methods (3 Credits)**
"English" means a lot of things. Are you looking for literature, or linguistics? For writing--creative, critical, or professional? For theater, or debate? For film, or even videogames? This gateway course for the English major introduces you to all of these areas and more, as well as to our discipline's unique resources for studying and enjoying them. The English discipline includes three main interpretive fields: Literary and Cultural Studies; Language, Writing, and Rhetoric; and Media Studies. This course brings together the fundamental concepts and methods for reading, viewing, and researching practiced in these fields, launching you into English studies and and helping you to choose the major track that is right for you.
**Restriction:** Must be in English Language and Literature program; or must be in Secondary Educ: English Language Arts program.

**ENGL302 Medieval Literature in Translation (3 Credits)**
Surveys major works of English and continental Middle Ages. Readings may include romance, lyric and drama, Germanic epic, works of Dante, Chretien de Troyes, Jean de Meun, Christine de Pisan, Malory, English and continental mystics.

**ENGL305 Early Drama (3 Credits)**
Explore medieval and Renaissance drama and performance, placing the Shakespearean stage in its cultural and historical contexts.

**ENGL308 Special Topics in Shakespeare (3 Credits)**
A topical exploration of William Shakespeare's plays and poems as well as their cultural contexts, performance history, and the roles they play in modern and contemporary culture
**Repeatable to:** 12 credits if content differs.

**ENGL310 Medieval and Renaissance British Literature (3 Credits)**
Detailed study of selected major medieval and Renaissance works written in England. Cultural attitudes and historical contexts. May include Beowulf, Anglo-Saxon lyric, drama, sonnets; works of women writers, Chaucer, Spenser, Sidney. Some readings in Middle English.

**ENGL311 British Literature from 1600 to 1800 (3 Credits)**
The culture of seventeenth and eighteenth-century Britain seen through detailed study of selected major texts. Drama, poetry, political writings, and early novels by men and women. Authors may include Donne, Milton, Jonson, Behn, Swift, Pope, Montagu, and Wollstonecraft.

**ENGL312 Romantic to Modern British Literature (3 Credits)**
Detailed study of selected major texts from the 19th and 20th centuries. Transitions from Romanticism to Victorian age to Modernism. Historical, social, literary contexts. Issues such as rise of democracy; industrial revolution; the "woman question"; revolutions in literary form. Authors might include Wordsworth, Austen, Dickens, Arnold, T.S. Eliot, and Woolf.

**ENGL313 American Literature (3 Credits)**
A detailed study of selected major texts of American literature from the 17th century to the 20th century. Issues such as race, gender, and regionalism. Authors such as Franklin, Hawthorne, Dickinson, Hemingway, and Morrison.

**ENGL316 Native American Literature (3 Credits)**
Examines literature that explores the experiences and cultures of America's Indigenous peoples from the sixteenth century to the contemporary moment. We will analyze poetry, historical accounts, oral narratives, short stories, and novels by Native American writers in order to explore key concerns in Native American Studies, such as dilemmas of Indigenous sovereignty, settler colonialism, the settler state, stolen land, and the natural environment.

**ENGL317 African American Literature (3 Credits)**
Consideration of key texts in African American literature that explore the experiences of people of African descent in America from the mid-nineteenth century to the contemporary moment. Relationship between literary texts, historical events and cultural formations. Examines a range of texts and genres (autobiography, slave narrative, travel narrative, poetry, essays, fiction), and their contribution to national literary tradition.

**ENGL318 Special Topics in Digital and New Media Studies (3 Credits)**
Explore digital and new media culture, narrative, poetics, and rhetoric. Topics may include creative expression in new media platforms and analytical approaches to electronic literature, social media, interactive fiction, literary datasets, digital writing, and artificial intelligence.
**Repeatable to:** 9 credits if content differs.

**ENGL319 Special Topics in Science, Literature, and Media (3 Credits)**
A topical investigation of the ways that science, art, and technology provoke ideas and innovation across their disciplinary boundaries within specific historical moments and locations.
**Repeatable to:** 12 credits if content differs.

**ENGL321 Comics and the Graphic Novel (3 Credits)**
Comics has become one of the most globally popular art forms of the twenty-first century, but it also has a rich history that stretches back to the eighteenth century, and arguably much earlier. This course will introduce students to the unique formal properties of comics and will survey the history of comics across national traditions, including texts drawn from the American, Franco-Belgian, and Japanese traditions. We will read across a range of genres and cultural registers--including newspaper strips, superhero comics, Underground comix, manga, the graphic memoir, and alternative comics. You will learn to analyze and write about the form and history of the medium.

**ENGL327 The Suburbs in American Literature and Film (3 Credits)**
Explores through written expression and through cinema the diverse and changing world of US suburbia. Premised on two arguments: (1) the suburbs embody many of the contours and contradictions of American life; and (2) the suburbs are far more racially, ethnically, culturally, sexually, economically diverse than mass media suggests. Investigation via prose, poetry, drama, and cinema, as well as secondary sources in sociology, women's studies, ethnic studies, history, cultural studies, psychology, anthropology, and the history of science and technology.

**ENGL329 Special Topics in Film Studies (3 Credits)**
Studies in various periods and genres of film.
**Prerequisite:** ENGL245, FILM245, FILM283, or SLLC283; or permission of ARHU-English department.
**Repeatable to:** 9 credits if content differs.

**ENGL331 American Jewish Literature (3 Credits)**
An exploration of the role played by literature in the development of American Jewish ethnic identity. Primary materials include essays, poetry, plays, short stories, novels, films and music.Cross-listed with JWST341.
**Credit Only Granted for:** ENGL331 or JWST341.

**ENGL334 The Bible as Literature (3 Credits)**
The Bible as a major source of contemporary Western religious symbolism and culture. Exploration of how this literary legacy appears in our own cultural experience. Historical critical and literary critical method and theory introduced and applied to the texts.

**ENGL344 Nineteenth-Century Fiction (3 Credits)**
Major British, American, and other fiction writers of the nineteenth century studied in the context of the broad global, intellectual, and artistic interests of the century.

**ENGL345 Twentieth Century Poetry (3 Credits)**
Major British and American poets of the twentieth century.
**Restriction:** Must not have completed ENGL446 or ENGL445.

**ENGL346 Twentieth Century Fiction (3 Credits)**
Major British, American, and other fiction writers of the twentieth century studied in the context of the broad global, intellectual, and artistic interests of the century.

**ENGL348 Literary Works by Women (3 Credits)**
The context, form, style and meaning of literary works by women.
**Prerequisite:** Must have completed at least one lower-level English literature course and one other lower-level English course; or Permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies.
**Cross-listed with:** WGSS348.
**Repeatable to:** 6 credits if content differs.
**Formerly:** WMST348.

**ENGL349 Asian American Literatures (3 Credits)**
Study of selected writers, particular themes, or genres in Asian American literatures.
**Repeatable to:** 9 credits if content differs.

**ENGL352 Intermediate Fiction Workshop (3 Credits)**
A class in the making of fiction. Intensive discussion of students' own fiction. Readings include both fiction and essays about fiction by practicing writers. Writing short critical papers, responding to works of fiction, and the fiction of colleagues, in-class writing exercises, intensive reading, and thinking about literature, in equal parts, and attendance at readings.
**Prerequisite:** Minimum grade of A- in ENGL271 or ENGL272; or permission of ARHU-English department.

**ENGL353 Intermediate Poetry Workshop (3 Credits)**
A class in the making of poetry. Intensive discussion of students' own poems. Readings in both poetry and essays about poetry by practicing poets. Writing short critical prose pieces, responding critically to colleagues' poems, in-class and outside writing exercises, memorization, and attendance at poetry readings.
**Prerequisite:** Minimum grade of A- in ENGL271 or ENGL273; or permission of ARHU-English department.

**ENGL354 Intermediate Scriptwriting for Theater, Film, and Television (3 Credits)**
Demystifies the art of dramatic writing. Students will come to understand that a play or screenplay is never a lecture, and that we write scripts to find out something about ourselves and the subjects we tackle. Students will analyze plays and screenplays, as well as workshop each others' scripts, to help them produce their own successful plays and screenplays written for the stage, screen, or box.
**Prerequisite:** 1 course with a minimum grade of A- from (ENGL275, ARHU375, THET340).

**ENGL355 Digital Fictions (3 Credits)**
Explores literary fiction composed and delivered in digital forms from the origins of computers in the mid-twentieth century to the present day. The course places equal emphasis on a historical survey of the intersection between the digital and the literary; on the enterprise of digital fiction as a dynamic and living form with new work appearing online almost every day; and on offering students the opportunity to experiment with digital platforms for fiction writing of their own. No technical expertise (or experience in creative writing) is expected or assumed.
**Credit Only Granted for:** ENGL355 or ENGL378C.
**Formerly:** ENGL378C.

**ENGL358 Special Topics in U.S. Latinx Literature (3 Credits)**
Topical study of selected works by U.S. Latinx writers.
**Repeatable to:** 9 credits if content differs.

**ENGL359 Special Topics in LGBTQ+ Literatures and Media (3 Credits)**
Selected study of a topic pertinent to literary and cultural expressions of LGBTQ+ identities, positionalities, and analytics through an exploration of literature, art, and/or media.
**Cross-listed with:** LGBT359.
**Repeatable to:** 9 credits if content differs.

**ENGL359F Lesbian, Gay, Bisexual, and Transgender Film and Video (3 Credits)**
Comparative analysis of forms, themes, and the politics of representation in film and video by and/or about LGBT people.
**Cross-listed with:** LGBT327.
**Restriction:** Junior standing or higher.
**Credit Only Granted for:** LGBT327 or ENGL359F.

**ENGL360 African, Indian and Caribbean Writers (3 Credits)**
Selected writers from countries formerly colonies of Britain, France, Denmark, etc. Attention to ways regions have developed distinctive political and aesthetic values resulting from indigenous traditions and foreign influences.

**ENGL361 Recovering Oral Histories (3 Credits)**
Service-learning course that gives students an opportunity to develop writing, interviewing, and communication skills as they contribute to the work of a community organization. In the classroom, students will reflect on the process and do background research to understand the particular context of the organization's work. In the field, students will interview (or have informal discussions with) young people helped by the organization in order to construct a narrative about their lives, their perceptions of themselves, and their experiences.
**Prerequisite:** Students must have completed one course in English, Latin American Studies, or Education.

**ENGL362 Caribbean Literature in English (3 Credits)**
Political and literary traditions that intersect in the fiction, poetry, and drama written in English by Caribbean writers, primarily during the 20th century.
**Cross-listed with:** LACS348E.
**Credit Only Granted for:** ENGL362, LASC348E, or LACS348E.

**ENGL368 Special Topics in African American, African, and African Diaspora Literatures (3 Credits)**
Topical study of selected literature by African American and Black Diaspora writers from Africa, the Caribbean, North and South America, and beyond.
**Repeatable to:** 9 credits if content differs.

**ENGL369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ENGL369D Australian Literature and Culture (3 Credits)**
An immersion into Australian culture and history, this course will explore the literature, music, theater, and arts of Indigenous and contemporary Australia. Students will engage directly with matters of political and social concern, developing both awareness of cultural issues important to modern-day Australians and the skills needed to navigate those issues. Along the way, we will look back to the colonial founding of Australia as a British outpost and consider how modern Australia has emerged from a mixing of Western and Indigenous cultures.
**Additional Information:** This is an Education Abroad course.

**ENGL369N New Zealand Literature and Culture (3 Credits)**
An immersion into the literature, history, and culture of New Zealand, this course will look back to the colonial founding of New Zealand as a British outpost, and to the strong Maori culture the British encountered when they arrived. Students will engage directly with matters of political and social concern, developing both awareness of cultural issues important to modern-day New Zealanders and the skills needed to navigate those issues. Along the way, we will consider how modern New Zealand has emerged from a mixing of Western and Indigenous cultures.
**Additional Information:** This is an Education Abroad course.

**ENGL370 Junior Honors Conference (1 Credit)**
Preparation for writing the senior honors project.
**Restriction:** Candidacy for honors in English.

**ENGL373 Senior Honors Project (2 Credits)**
Research and writing of senior honors project. Strongly recommended for students planning graduate work.
**Prerequisite:** ENGL370.
**Restriction:** Must be in English Language and Literature program.

**ENGL375 J.R.R. Tolkien: Middle-earth and Beyond (3 Credits)**
An in-depth look at major themes and ideas spanning Tolkien's well-known and lesser-known works across a variety of genres and styles. We will study "The Hobbit" and "The Lord of the Rings" in connection with Tolkien's back-story mythology expressed in "The Silmarillion." We will also consider film adaptations and other popular fantasy influenced by Tolkien. And we will explore lesser-known works such as "Farmer Giles of Ham," and Tolkien's essays on fairy stories and on "Beowulf.

**ENGL376 The Speculative Imagination: Science Fiction on Page and Screen (3 Credits)**
Examines a global cross-section of science fiction in literature, film, television, comics, and other media. Studies the unique formal qualities of science fiction and traces its history from its origin in the eighteenth century to the present. Explores how the twenty-first century has brought new prominence to science fiction by creators of color, women creators, and queer creators, as well as intersections of these. Considers how science fiction addresses a range of phenomena--from environmental destruction to surveillance to imperialism and militarism. Students learn how to analyze and write about the formal and historical dimensions of the genre.
**Credit Only Granted for:** ENGL379Y or ENGL376.
**Formerly:** ENGL379Y.

**ENGL377 Medieval Myth and Modern Narrative (3 Credits)**
Literary patterns characteristic of medieval myth, epic, and romance; their continuing vitality in modern works; and links between Medieval works like "The Prose Edda", "Beowulf", "The Morte D'Arthur", "The Volsunga Saga", and "Grettis Saga" and modern narratives like Tolkien's "The Lord of the Rings".

**ENGL378 Special Topics in English (3 Credits)**
Offers sustained attention to notable current themes and approaches in English studies. Topics vary by section and semester.
**Repeatable to:** 12 credits if content differs.

**ENGL379 Special Topics in Literature (3 Credits)**
**Repeatable to:** 12 credits if content differs.

**ENGL381 MGA Legislative Seminar (3 Credits)**
Prepares students to intern for the Maryland General Assembly. Introduces standard legislative genres and assigns extended practice in researching legislative issues.
**Prerequisite:** Students who have taken courses with comparable content may contact the department; or ENGL101.
**Cross-listed with:** HONR368A.
**Restriction:** Permission of ARHU-English department.
**Credit Only Granted for:** HONR368A or ENGL381.
**Additional Information:** Application required. Contact english@umd.edu for more information.

**ENGL383 Language in Its Social Contexts (3 Credits)**
Exploration of the social and political aspects of language use, including interactional behavior, the structure of conversation, persuasive uses of language, social dialects, language use within speech communities, and language and identity. We will examine and compare analytical approaches to pragmatics and discourse analysis.

**ENGL384 Concepts of Grammar (3 Credits)**
Introduction to the basic units of grammatical description; motivation for and nature of constituent structure and syntactic categories; fundamental grammatical concepts employed in the teaching and learning of languages.

**ENGL385 English Semantics (3 Credits)**
The study of meaning in language and language use. Examines how the senses of words and other linguistic constructions are mentally represented, and how they contribute to the construction of meanings in linguistic communication.

**ENGL386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.
**Restriction:** Junior standing or higher.

**ENGL387 Visual Rhetoric (3 Credits)**
Investigation of the persuasive power of visuals based on how they construct and communicate their content and predispose viewers to an interpretation or attitude. "Iconic" images and other modes of visual representation including diagrams, graphs, and page or screen design. Most attention given to a grammar and rhetoric of visuals. Also the elements of images and their arrangement and consideration of historical and generic contexts and the "affordances" of various media. Not a course in "high art" or in video, TV, or film. Emphasis on visuals that accompany or replace verbal texts.

**ENGL388 Writing, Research, and Media Internships (1-6 Credits)**
Explore career-facing opportunities on campus, in the D.C. metro area, and beyond. English internships can be individualized, working with businesses, not-for-profit organizations, state and federal governments, high schools, and incarcerated students. We also offer structured internship pathways with the Maryland General Assembly Program, the Emily Dickinson Electronic Archives, the Writing Center, our Undergraduate Teaching Assistant Program, and BookLab, our makerspace and letterpress printing studio.
**Restriction:** Permission of ARHU-English department.
**Repeatable to:** 18 credits if content differs.

**ENGL388C Writing for Change (3 Credits)**
Service learning in collaboration with students at area high schools. Explores how writing can be a tool for social change. Participants serve as mentors, create a performance event concerning a pressing social issue, and compose reflections, literacy narratives, and publicity materials. Students also design individual projects that link course content and students' own professional interests.
**Prerequisite:** Permission of ARHU-English Department .
**Recommended:** ENGL101.
**Jointly offered with:** ENGL292.
**Restriction:** Requires application and references.
**Credit Only Granted for:** ENGL292 or ENGL388C.

**ENGL388M Maryland General Assembly Writing Internship (6 Credits)**
Experiential learning at the Maryland General Assembly (early January through early April). Interns participate in standard office tasks, research legislative issues, and draft legislative texts such as constituent letters, notes on bills, newsletters, policy memos, and testimony. Specific assignments vary according to the host legislator's needs and the intern's schedule.
**Prerequisite:** ENGL381 or HONR368A.
**Cross-listed with:** HONR379W.
**Restriction:** Minimum cumulative GPA of 3.0; and must have earned a minimum of 60 credits; and must be admitted to the MGA program.
**Credit Only Granted for:** ENGL388M or HONR379W.

**ENGL388P English Careers Internship (1-6 Credits)**
Students receive credit for an internship of their choice that focuses at least half of its work on core English skills such as writing, editing, and research. Students secure their own internship placements. Course assignments include, for instance, an activity log, reflection papers, a supervisor evaluation, and a final portfolio of work.
**Prerequisite:** Permission of ARHU-English department.
**Repeatable to:** 12 credits if content differs.
**Additional Information:** Each enrolled credit equals 45 hours of on-site internship work.

**ENGL388V Undergraduate Teaching Assistants in English (1-6 Credits)**
A weekly teaching practicum and concurrent internship as an undergraduate teaching assistant in an English course. Students will explore the theories and best practices of teaching and learning in the various fields of the English discipline, particularly writing and literary studies. The emphasis is on creating inclusive classrooms and working with diverse learners and is grounded in theories of critical pedagogy. Students will apply principles of learning theory to develop and facilitate learner-centered lessons and discussions. They will also study composition pedagogy in preparation for responding to student writing in the course for which they are an assistant.
**Prerequisite:** Permission of the ARHU-English department.
**Repeatable to:** 12 credits.
**Additional Information:** Students should consult with the UTA Coordinator to determine the number of enrollment credits.

**ENGL388W Writing Center Internship (1-6 Credits)**
Examines face-to-face and online writing center theory and practice through readings, exercises, and supervised tutoring. Students investigate the writing process and help other writers to negotiate it.
**Prerequisite:** Permission of the Writing Center (1205 Tawes Hall).
**Cross-listed with:** SPAN388W.
**Repeatable to:** 12 credits.
**Credit Only Granted for:** ENGL388W or SPAN388W.

**ENGL390 Science Writing (3 Credits)**
Specifically designed for students interested in further study in the physical and biological sciences. Exposes students to the conventions of scientific prose in the genres of research articles and proposals. Students also learn to accommodate scientific information to general audiences.
**Prerequisite:** Must have fulfilled the Academic Writing (FSAW) requirement.
**Restriction:** Must have earned a minimum of 60 credits; and junior standing or higher.
**Credit Only Granted for:** ENGL390 or ENGL393S.
**Formerly:** ENGL393S.

**ENGL391 Advanced Composition (3 Credits)**
An advanced composition course which emphasizes constructing written arguments accommodated to real audiences.
**Prerequisite:** Must have fulfilled the Academic Writing (FSAW) requirement.
**Restriction:** Must have earned a minimum of 60 credits.

**ENGL392 Legal Writing (3 Credits)**
Conventions of legal writing and research. Students learn how to read and write about cases, statutes, or other legislation; how to apply legal principles to fact scenarios; and how to present a written analysis for readers in the legal profession. Assignments may include the law-school application essay, case briefs, legal memos, and client letters.
**Prerequisite:** Must have fulfilled the Academic Writing (FSAW) requirement.
**Restriction:** Must have earned a minimum of 60 credits.

**ENGL393 Technical Writing (3 Credits)**
Focuses on the writing of technical papers and reports.
**Prerequisite:** Must have fulfilled the Academic Writing (FSAW) requirement.
**Restriction:** Must have earned a minimum of 60 credits.

**ENGL394 Business Writing (3 Credits)**
Intensive practice in the forms of written communication common in the business world: letters, memos, short reports, and proposals. Focus on the principles of rhetoric and effective style.
**Prerequisite:** Must have fulfilled the Academic Writing (FSAW) requirement.
**Restriction:** Must have earned a minimum of 60 credits.

**ENGL395 Writing for Health Professions (3 Credits)**
Focus on accommodating health-related technical material and empirical studies to lay audiences, and helping writers to achieve stylistic flexibility and correctness.
**Prerequisite:** Must have fulfilled the Academic Writing (FSAW) requirement.
**Restriction:** Must have earned a minimum of 60 credits.

**ENGL398 Topics in Professional Writing (3 Credits)**
Professional writing courses that focus on the audiences, conventions, and genres of particular disciplines, professions, or organizations. Examples include writing for the arts, writing case studies and investigative reports, writing about economics, and writing for non-profit organizations.
**Prerequisite:** ENGL101; or students who have taken courses with comparable content may contact the department.
**Restriction:** Must have earned a minimum of 60 credits; and junior standing or higher.
**Repeatable to:** 6 credits if content differs.

**ENGL398A Writing for the Arts (3 Credits)**
Examines the situations and genres in which working professionals (practitioners, advocates, administrators, and educators) write about art, culture, and artists. The course covers the complex process that writers need to learn, including how to accommodate information to specific audiences, how to use stylistic and visual devices to make information more accessible, and how to edit their own work as well as that of their peers. Assignments parallel the writing demands that students will face in the workplace, including analyzing and composing artist statements, an arts manifesto, art education guides, press releases about artists and their work, critical reviews of exhibits and performances, and proposals to funding agencies and foundations.
**Prerequisite:** Must have fulfilled the Academic Writing (FSAW) requirement.
**Restriction:** Must have earned a minimum of 60 credits.

**ENGL398B Writing for Social Entrepreneurship (3 Credits)**
Designed for students who want to develop the skills needed to start a successful social venture--a start-up business with a social mission or a new nonprofit program. The course centers on a major writing project such as a business plan, a website design plan, a fundraising proposal, or a concept paper for a new nonprofit organization. Students produce other communication projects that social entrepreneurs use to develop their businesses and nonprofits, such as presentations or pitches to prospective investors/donors, marketing materials, and a job announcement. Students will learn from local social entrepreneurs who share their experiences of using writing to succeed in the field.
**Prerequisite:** Must have fulfilled the Academic Writing (FSAW) requirement.
**Restriction:** Must have earned a minimum of 60 credits.

**ENGL398C Writing Case Studies and Investigative Reports (3 Credits)**
Designed for students interested in becoming police investigators, educators, case workers, insurance adjusters, nurses, or program evaluators, or in entering branches of the social sciences that investigate cases and value reports based on accurate descriptions and compelling narratives. Such reports must be factual and yet useful to decision makers, unbiased and yet focused. Students study genres and language skills from careful summarizing to convincing storytelling.
**Prerequisite:** Must have fulfilled the Academic Writing (FSAW) requirement.
**Restriction:** Must have earned a minimum of 60 credits.

**ENGL398E Writing About Economics (3 Credits)**
Examines the characteristic genres of writing in modern economics, including theoretical and empirically based journal articles, reports for government and commercial clients, and economic information presented to a variety of non-professional audiences, such as citizen-oriented and public policy organizations. Students learn how to analyze these documents rhetorically and how to communicate economic information using the content, arrangement, style, and visual graphics best suited to the purposes and standards of particular audiences. Core assignments include a genre-based journal and document analysis, presentations on economics-related topics for both economists and non-professional audiences, and a major research-based writing project for an audience outside of the classroom.
**Prerequisite:** Must have fulfilled the Academic Writing (FSAW) requirement.
**Restriction:** Must have earned a minimum of 60 credits.

**ENGL398L Scholarly Writing in the Humanities (3 Credits)**
Examines scholarship in the humanities as a genre of professional writing and investigates the norms and procedures of advanced academic writing. Assignments parallel the writing demands that students will face in the academic workplace, including a graduate school application essay, a genre review, an annotated bibliography, a journal article, and an oral presentation of article subject matter.
**Prerequisite:** Must have fulfilled the Academic Writing (FSAW) requirement.
**Restriction:** Must have earned a minimum of 60 credits.

**ENGL398N Writing for Non-Profit Organizations (3 Credits)**
Examines professional writing and communication work in the non-profit sector. Students will analyze the audiences and document genres that they may encounter in real-world non-profit work and will learn how to compose many of these documents, from press releases and other public relations material to position papers, reports, and grant proposals. Students may also have the opportunity to add a service-learning component to the course by working with and for an area non-profit.
**Prerequisite:** Must have fulfilled the Academic Writing (FSAW) requirement.
**Restriction:** Must have earned a minimum of 60 credits.

**ENGL398R Writing Non-Fictional Narratives (3 Credits)**
Approaches nonfiction narrative-a kind of writing influenced by fiction, magazine journalism, memoir, and personal essay--as a form of professional writing used in publishing and a range of careers involving proposal writing, work documentation, lobbying, social marketing, and political commentary, among others. Students learn to use many of the same tools as fiction writers, such as dialogue, vivid description, developing characters, nonlinear structure, and shifts in tense, time, and points of view. They also learn how to edit their own work as well as that of their peers, doing multiple revisions of the major assignments for a final portfolio. Major assignments include essays targeted to specific publications, query letters, audience analysis, and a publisher analysis.
**Prerequisite:** Must have fulfilled the Academic Writing (FSAW) requirement.
**Restriction:** Must have earned a minimum of 60 credits.

**ENGL398V Writing About the Environment (3 Credits)**
Designed for those aspiring to work in a variety of fields that influence and are influenced by environmental science, including public policy, advocacy, science, and industry. Students learn to apply principles of technical writing to a range of scenarios and issues particular to the intersection of scientific knowledge and environmental policy. Writing audiences range from the public to decision-makers. The course emphasizes writing both within and across disciplines to enlist research for practical contexts.
**Prerequisite:** Must have fulfilled the Academic Writing (FSAW) requirement.
**Restriction:** Must have earned a minimum of 60 credits.

**ENGL402 Chaucer (3 Credits)**
Works read in Middle English. Readings may include Canterbury Tales, Troilus and Criseyde, dream visions, lyrics.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL403 Shakespeare: The Early Works (3 Credits)**
Close study of selected works from the first half of Shakespeare's career. Generic issues of early histories, comedies, tragedies. Language, theme, dramatic technique, sources, and early modern English social-historical context.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL404 Shakespeare: The Later Works (3 Credits)**
Close study of selected plays from the second half of Shakespeare's career. Generic issues of later tragedies, later comedies, romances. Language, theme, dramatic technique, sources, and early modern English social-historical context.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL408 Literature by Women Before 1800 (3 Credits)**
Selected writings by women in the medieval and early modern era.
**Prerequisite:** Must have completed two English courses in literature; or permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies.
**Cross-listed with:** WGSS408.
**Repeatable to:** 9 credits if content differs.
**Formerly:** WMST408.

**ENGL409 Study Abroad Special Topics IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ENGL410 Edmund Spenser (3 Credits)**
Selected works of Edmund Spenser in their literary, social, and historical contexts. Special attention to The Faerie Queene; also sonnets and lyric poetry.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL412 Literature of the Seventeenth Century, 1600-1660 (3 Credits)**
Works from early Stuart through Interregnum period. Major literary genres in historical contexts. Writers such as Donne, Jonson, Mary Wroth, Bacon, Browne, and Marvell.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL414 Milton (3 Credits)**
Poetry and major prose in their social, political, and literary-historical contexts. Special attention to Paradise Lost. Other works may include Samson Agonistes and shorter poems.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL416 Literature of the Eighteenth Century, 1700-1750 (3 Credits)**
British literary traditions, including the poetry of Pope, the prose of Swift, the correspondence of Montagu, the drama of Gay, and early novels by Defoe, Richardson, and Fielding.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL420 English Romantic Literature (3 Credits)**
British poetry, drama, fiction, and criticism c.1790 to c.1830, a period of dramatic social change and revolution in literature, philosophy, the arts, industry, and politics. Authors include Austen, Wordsworth, Coleridge, Keats, Byron, Percy, and Mary Shelley.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL422 English Victorian Literature (3 Credits)**
A survey of English literature of the Victorian period. Writers may include Arnold, Browning, Tennyson, Dickens, George Eliot, Carlyle, Ruskin, Newman, and Wilde.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL425 Modern British Literature (3 Credits)**
Major Modernist writers in English prose and poetry since 1900. Such writers as Eliot, Larkin, Forster, Burgess, Durrell, Henry Green, Golding, Auden, Malcolm Lowry, Joyce, and Yeats.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL428 Seminar in Language and Literature (3 Credits)**
Topics will vary each semester. The course will provide a seminar experience in material or methodologies not otherwise available to the major.
**Restriction:** Junior standing or higher; and must be in the English Honors program or gain permission from the department.
**Repeatable to:** 12 credits if content differs.

**ENGL429 Independent Research in English (1-6 Credits)**
An advanced independent research project for qualified students, supervised by an English faculty member, on a topic not ordinarily covered in available courses.
**Prerequisite:** ENGL301; and two English courses (excluding fundamental studies requirement); and permission of ARHU-English department.
**Restriction:** Sophomore standing or higher.
**Repeatable to:** 9 credits if content differs.

**ENGL430 Literature of the Americas from First Contact to Revolution (3 Credits)**
Examines the literature of the cultural encounters, colonialisms, empires, and independence movements in the early Americas from 1492 through the eighteenth century. Writers typically include Christopher Columbus, John Smith, Anne Bradstreet, Jonathan Edwards, William Byrd, Olaudah Equiano, Phillis Wheatley, and Benjamin Franklin.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL431 American Literature: Revolution to Civil War (3 Credits)**
An examination of nationalism, sentimentalism, and romanticism, with writings focusing on such topics as slavery and democracy during the 1770s to 1860s. Authors typically include Ralph Waldo Emerson, Margaret Fuller, Emily Dickinson, Walt Whitman, Frederick Douglass, Harriet Beecher Stowe, Edgar Allan Poe, Nathaniel Hawthorne, and Herman Melville.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL432 American Literature: 1865 to 1914, Realism and Naturalism (3 Credits)**
Reconstruction, Realism, Naturalism. Representative writers such as Dickinson, James, Dreiser.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL433 American Literature: 1914 to the Present, the Modern Period (3 Credits)**
Modernism, Postmodernism. Writers such as Stevens, Stein, Ellison.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL435 American Poetry: Beginning to the Present (3 Credits)**
Selections of American poetry, from Bradstreet to contemporary free verse. Authors such as Whitman, Dickinson, Bishop, Hughes, Rich, and Frost.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL437 Contemporary American Literature (3 Credits)**
Prose, poetry, drama of living American writers. Current cultural and social issues.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL438 Selected Topics in Media Studies (3 Credits)**
Advanced study of a topic pertinent to how the material production, technologies, and cultural practices of diverse types of media shape meaning.
**Prerequisite:** Two English courses beyond Fundamental Studies; or permission of ARHU-English department.
**Recommended:** At least one prior course in Media Studies.
**Repeatable to:** 9 credits if content differs.

**ENGL439 Spotlight on Major Writers (3 Credits)**
An intensive study of a single writer, or a handful of writers, to understand the shifts in the writer's craft and cultural influence, both past and present.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.
**Repeatable to:** 9 credits if content differs.

**ENGL440 The Novel in America to 1914 (3 Credits)**
Survey of the American novel to World War I. Cultural and philosophical contexts; technical developments in the genre. Authors such as Melville, Wells Brown, James, Sedgwick, Chopin.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL444 Feminist Critical Theory (3 Credits)**
Issues in contemporary feminist thought that have particular relevance to textual studies, such as theories of language, literature, culture, interpretation, and identity.
**Prerequisite:** WMST200, WGSS200, WMST250, WGSS250, or ENGL250.
**Cross-listed with:** WGSS444.
**Credit Only Granted for:** ENGL444, WMST444 or WGSS444.
**Formerly:** WMST444.

**ENGL446 Post-Modern British and American Poetry (3 Credits)**
British and American poets from the 1930s to the present. Such poets as Auden, Williams, Plath, Brooks, Lowell, Wolcott, Ted Hughes, Bishop, Larkin, Jarrell, and Berryman.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL448 Literature by Women of Color (3 Credits)**
Literature by women of color in the United States, Britain, and in colonial and post-colonial countries.
**Prerequisite:** Must complete two English courses in literature; or permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies.
**Cross-listed with:** WGSS448.
**Repeatable to:** 9 credits if content differs.
**Formerly:** WMST448.

**ENGL449 Selected Topics in U.S. Latinx Literature (3 Credits)**
Advanced study of selected works by U.S. Latinx writers.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.
**Repeatable to:** 9 credits if content differs.

**ENGL451 Renaissance Drama II (3 Credits)**
Drama in early decades of the seventeenth century. Playwrights include Jonson, Middleton, Marston, Webster, Beaumont and Fletcher. Tragedy, city comedy, tragicomedy, satire, masque. Pre-Civil War theatrical, political, and religious contexts.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL452 English Drama From 1660 to 1800 (3 Credits)**
Restoration and eighteenth-century drama, with special attention to theater history, cultural influences, concepts of tragedy, comedy, farce, parody, and burlesque, as well as dramatic and verbal wit.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL453 Critical Theory in English Studies (3 Credits)**
Examines our assumptions about literature, language, media, and culture by exploring how people have theorized key concepts and relations like language, materiality, meaning, representation, identity, and power. We will focus both on learning the history, arguments, and vocabularies of these theories and on evaluating their usefulness for helping us to understand the many kinds of texts (visual, aural, etc.) we study in English. Theoretical thinking will aid us in analyzing the forms texts take; the ideas texts record, challenge, or reinvent; and how texts make us think or feel about ourselves, others, and the world in which we live.
**Prerequisite:** Two English courses (excluding Fundamental Studies requirement); or permission of ARHU-English Department.

**ENGL454 Modern Drama (3 Credits)**
The history of modern British drama, from its roots in Chekhov and Ibsen, through the modernisms of Samuel Beckett and Bertolt Brecht, through the Angry Young Men of the 1950s, and right up to the present. Most plays will be from the last 40 years, by writers such as David Hare, Tom Stoppard, Lucy Kirkwood, Caryl Churchill, Roy Williams, Lucy Prebble, Alan Bennett, Brian Friel, Terrence Rattigan, Kwame Kwei-Armah, Sarah Kane, and Alice Birch. We will also look at how class, money, immigration, and the end of the Empire changed British plays over time. And we will consider modern theater architecture and production design as well as the directing instincts of, for instance, Peter Brook, Katie Mitchell, Marianne Elliott, and Nicholas Hytner.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL455 The Eighteenth-Century English Novel (3 Credits)**
The origins and development of the British novel, from the late seventeenth century until the beginning of the nineteenth. Questions about what novels were, who wrote them, and who read them. Authors such as Behn, Defoe, Richardson, Fielding, Sterne, Smollett, Burney, Radcliffe, and Austen.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL456 The Nineteenth-Century English Novel (3 Credits)**
Surveys major novels of the period. Attention to narrative form and realism; representations of gender and class; social contexts for reading, writing and publishing. Authors such as Austen, Bronte, Dickens, George Eliot, Trollope.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL457 The Modern Novel (3 Credits)**
Modernism in the novel of the twentieth century. Such writers as Joyce, Lawrence, Murdoch, James, Forster, Faulkner, Hemingway, Fitzgerald, Ellison, Welty, Nabokov and Malamud.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL458 Literature by Women After 1800 (3 Credits)**
Selected writings by women after 1800.
**Prerequisite:** Must have completed two English courses in literature; or permission of Harriet Tubman Department of Women, Gender, and Sexuality Studies.
**Cross-listed with:** WGSS458.
**Repeatable to:** 9 credits if content differs.
**Formerly:** WMST458.

**ENGL459 Selected Topics in LGBTQ+ Literatures and Media (3 Credits)**
Advanced study of a topic pertinent to literary and cultural expressions of LGBTQ+ identities, positionalities, and analytics through an exploration of literature, art, and/or media.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.
**Repeatable to:** 9 credits if content differs.

**ENGL460 Archival Research Methods in English Studies (3 Credits)**
Introduces approaches for doing archival research in English studies, exploring how researchers develop their scope and practices of study and how they access and use archival materials electronically and on site to further their research questions. Investigates a historical period, genre, or theme through the lens of manuscripts, ephemera, and other artifacts. Case studies vary by semester.
**Prerequisite:** Two English courses beyond the Fundamental Studies courses; or permission of ARHU-English Department.

**ENGL461 Researching Literacy and Language (3 Credits)**
Gain practical research experience as you learn to do qualitative research in literacy, writing, and language studies. Study reading, writing, and composing in a variety of contexts (for example, social media and other digital spaces, classrooms, writing centers, churches, workplaces or other community sites). Learn to design and conduct ethical, responsible research studies. Learn to collect data through methods such as interview, observation, and survey and to analyze that data through a variety of methods. Finally, learn to present your research through genres such as reports, posters, and/or presentations.
**Prerequisite:** Students must have satisfied Fundamental Studies Academic Writing requirement.
**Credit Only Granted for:** ENGL488R or ENGL461.
**Formerly:** ENGL488R.

**ENGL462 Folksong and Ballad (3 Credits)**
A cross-section of American folk and popular songs in their cultural contexts; artists from Bill Monroe to Robert Johnson.

**ENGL463 Narrative Analysis Methods in English Studies (3 Credits)**
Approaches to literary narrative analysis. Explores narrative theory as a research method for studying the fundamental categories of literary narrative--such as the narrator, character, plot, closure, and frames, as well as the nature of fictionality and the role of the reader--and for interpreting their deployment in individual literary works. We will use this method to examine particularly unusual and even radical fiction, so we can understand the meaning-making work accomplished by narrative form.
**Prerequisite:** Two English courses beyond Fundamental Studies; or permission of ARHU-English department.

**ENGL466 Arthurian Legend (3 Credits)**
Development of Arthurian legend in English and continental literature from Middle Ages to twentieth century. All readings in modern English.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL467 Creative Approaches to Digital Textuality (3 Credits)**
Examines electronic literature and other aspects of the literary world online with a focus on experimental writing with computers. Topics may include digital fiction and storytelling, bots, book hacking, flash fiction, narrative in games, and artificial-intelligence-generated fiction, poetry, and art. No programming experience required.
**Prerequisite:** One English course beyond Fundamental Studies; or permission of ARHU-English department.

**ENGL468 Selected Topics in Film Studies (3-9 Credits)**
Advanced studies in various periods and genres of film.
**Prerequisite:** ENGL245, FILM245, CINE245, FILM283, or SLLC283; or permission of ARHU-English department.
**Recommended:** ENGL329, CMLT280, and ENGL245.
**Repeatable to:** 9 credits if content differs.

**ENGL469 The Craft of Literature: Creative Form and Theory (3 Credits)**
Examines various forms of poetry and/or fiction, emphasizing the practice of making literary art and the aesthetic and theoretical approaches that define it. Students will practice the elements of literary craft, producing and experimenting with a wide range of forms and conventions in poetry and/or fiction. They will also produce critical work that articulates and contextualizes theoretical approaches to the making of literary art.
**Prerequisite:** 2 ENGL courses in literature or creative writing; and have completed a 200-level creative writing workshop in ENGL. Or permission of ARHU-English department.
**Repeatable to:** 9 credits if content differs.

**ENGL470 African-American Literature: From Slavery to Freedom (3 Credits)**
Examines African-American literature from its beginnings to the early twentieth century, including genres ranging from slave narratives, pamphlets, essays, and oratory, to poetry and fiction. Our emphasis is on the interaction between literature and literary forms, on the one hand, and historical and political developments in the push toward emancipation, on the other.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL471 African-American Literature: 1910-1945 (3 Credits)**
Emergence of modernism in African-American writing including debates over the definition of unique African-American aesthetics, with emphasis on conditions surrounding the production of African-American literatures.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL472 African-American Literature: 1945 to Present (3 Credits)**
Transformation of African-American literatures into modern and postmodern forms. Influenced by World War II and the Civil Rights and Black Power movements, this literature is characterized by conscious attempts to reconnect literary and folk forms, the emergence of women writers, and highly experimental fiction.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL475 Postmodern Literature (3 Credits)**
The origins and ongoing development of postmodern literature. Aspects of the "postmodern condition," such as the collapse of identity, the erasure of cultural and aesthetic boundaries, and the dissolution of life into textuality. The novel and other genres and media.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.

**ENGL477 BookLab (3 Credits)**
Historical, imaginative, and experiential introduction to different elements of books and bookmaking, including letterpress printing with traditional lead and wood (movable) type, different techniques for bindings, 3D printing, zines, making altered and treated books, and so on. Class-time will be a mix of discussion and hands-on activity. The course will culminate in each student designing and creating their own book object, which might take the form of an artist's book, chapbook, zine, an altered or treated book, or something else entirely. Taught with the resources and facilities available in the English department's BookLab.
**Prerequisite:** Two English courses; or permission of ARHU-English department.
**Credit Only Granted for:** ENGL428M, ENGL438P, ENGL479P, or ENGL477.
**Formerly:** ENGL428M, ENGL438P, ENGL479P.

**ENGL478 Selected Topics in Literature before 1800 (3 Credits)**
Advanced study of key topics in literary works from earlier historical periods.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.
**Repeatable to:** 9 credits if content differs.

**ENGL479 Selected Topics in Literature after 1800 (3 Credits)**
Advanced study of key topics in literary works from later historical periods.
**Prerequisite:** Two English courses in literature; or permission of ARHU-English department.
**Repeatable to:** 9 credits if content differs.

**ENGL482 History of the English Language (3 Credits)**
Examines the origins and development of the English language.
**Prerequisite:** ENGL280, LING200, or HESP120; or permission of ARHU-English department.

**ENGL483 American English(es) (3 Credits)**
Examines the diversity of dialects, registers, and jargons of English found in the United States, as well as their origins, structures, and functions in society.
**Prerequisite:** LING200, ENGL280, or HESP120; or permission of ARHU-English department.

**ENGL484 Style and Grammar in Written English (3 Credits)**
The linguistic analysis of written texts. Examines grammatical and discursive constructions above the level of the sentence and their functions in literary and non-literary texts. We will study narrative structure, authorial voice, genre, register, stance, viewpoint, empathy, surprise, and humor in language.
**Credit Only Granted for:** ENGL484 or LING402.

**ENGL487 Principles and Practices of Rhetoric (3 Credits)**
A seminar examining foundational concepts and approaches in the theory and practice of rhetoric in civic, professional, academic, and interpersonal settings; focusing on key issues in persuasion, argumentation, and eloquence in historical and contemporary contexts.

**ENGL488 Topics in Advanced Writing (3 Credits)**
Different genres of technical and professional writing including proposal writing, computer documentation, technical report writing, instruction manuals, etc. Students will analyze models of a genre, produce their own versions, test, edit and revise them.
**Repeatable to:** 9 credits if content differs.

**ENGL489 Special Topics in Language and Rhetoric (3 Credits)**
Special topics in language and rhetoric, such as discourse analysis, semantics, or cognitive linguistics; comparative rhetoric and rhetorical theory, digital rhetorics, women's and minority rhetorics, or the history of rhetoric.
**Repeatable to:** 9 credits if content differs.

**ENGL491 Digital Rhetoric (3 Credits)**
Examines the social significance of the ways digital texts are composed and circulated. Explores why it matters how the web is written and who does the writing, understanding the Internet as rhetorical from its content and communities to the code, protocols, and policies that control digital distribution. Includes active experimentation with digital tools so students can expand their theoretical understanding through critical making.
**Prerequisite:** Students must have satisfied the Fundamental Studies Academic Writing requirement.
**Credit Only Granted for:** ENGL489J, or ENGL491.
**Formerly:** ENGL489J.

**ENGL492 Graphic Design and Rhetoric (3 Credits)**
An exploration of the visual dimensions of texts and the skills involved in designing them well. Considers graphic design theory and history from a rhetorical perspective, working to understand and practice the use of symbol systems to express, inform, and advocate. Includes direct experimentation with the principles and techniques of graphic design.
**Prerequisite:** Students must have satisfied Fundamental Studies Academic Writing requirement.

**ENGL493 Writing Genres as Social Action (3 Credits)**
A rhetorical genre studies approach to understanding the work that texts do in the world. Examines issues of identity, power, and medium as they relate to writing in various contexts. Students analyze the texts, context(s), and social significance of a public, professional, digital, and/or advanced academic genre and produce writing that meets, modifies, and subverts expectations.
**Recommended:** Satisfactory completion of the professional writing requirement (FSPW).
**Restriction:** Must have earned a minimum of 60 credits.

**ENGL494 Editing and Document Design (3 Credits)**
Principles of general editing for clarity, precision and correctness. Applications of the conventions of grammar, spelling, punctuation and usage, and organization for logic and accuracy. Working knowledge of the professional vocabulary of editing applied throughout the course.
**Prerequisite:** ENGL393 or ENGL391; or students who have taken courses with comparable content may contact the department.

**ENGL495 Independent Study in Honors (1-3 Credits)**
Completion and presentation of the senior honors project.
**Prerequisite:** ENGL373 and ENGL370.
**Restriction:** Must be in English Language and Literature program; and candidacy for honors in English.

**ENGL497 English at Work (3 Credits)**
Examines how English majors put their academic knowledge and skills to work in professional workplaces after graduation. Students learn strategies to research careers, and they shadow a person in a career of interest for a day. Students learn to compose different professional genres to write and speak about and for professional development and advancement, including inquiry letters, technical descriptions, professional portfolios, and elevator pitches. Students will critically examine the learning they have done in their undergraduate coursework and compose a vision for bringing that learning to life in their future work.
**Prerequisite:** ENGL301; and an ENGL course at the 300-level or higher.
**Restriction:** Must have earned a minimum of 60 credits.

**ENGL498 Advanced Fiction Workshop (3 Credits)**
An advanced class in the making of fiction. Intensive discussion of students' own fiction. Readings include both fiction and essays about fiction by practicing writers. Writing short critical papers, responding to works of fiction, and to colleagues' fiction, in-class writing exercises, intensive reading, and thinking about literature, in equal parts, and attendance at readings.
**Prerequisite:** ENGL352; or permission of ARHU-English department.
**Repeatable to:** 9 credits if content differs.
**Formerly:** ENGL496.

**ENGL499 Advanced Poetry Workshop (3 Credits)**
An advanced class in the making of poetry. Intensive discussion of students' own poems. Readings include both poetry and essays about poetry by practicing poets. Writing short critical prose pieces, responding critically to colleagues' poems, in-class and outside writing exercises, and attendance at poetry readings.
**Prerequisite:** ENGL353; or permission of ARHU-English department.
**Repeatable to:** 9 credits.
**Formerly:** ENGL497.

# ENGX - English Education Abroad

**ENGX200 Writing From Research (3 Credits)**
Prepares students to plan, research, and write academic-level research papers autonomously. Students are guided through all writing stages, from preparing an articulated research proposal, to collecting sources and arranging them in an annotated bibliography, to outlining, drafting, and, finally, completing the paper in accordance with current MLA guidelines.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ENGX202 Fiction: Genre, Techniques, and Structure (3 Credits)**
Designed to help students acquire the skills for reading, appreciating, writing, and critically analyzing fiction. This course intends to introduce the students to basic concepts about literary technique, elements of fiction, and innovation while honing their critical thinking skills.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ENGX204 Writing Rome (3 Credits)**
Explores the city of Rome through writing. On-site classes provide an interdisciplinary, studio-art approach to the generation of written work. Through the studied practice of descriptive writing and the examination of setting as a vital literary component, students will create their own textual map of the Eternal City.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ENGX205 Creative Writing: Prose Fiction (3 Credits)**
Introduces students to writing prose fiction through practice-based workshops and seminars. Students will explore the methodologies of writing fiction from a writer's perspective, and focus on form, structure, and narrative technique.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**ENGX206 Travel Writing (3 Credits)**
Explores the genre of travel writing through the analysis of a wide range of works, including articles about food, art, nature, and culture. Takes students outside of the classroom and into the city of Florence and considers the principles of concise, clear, and entertaining prose that make travel writing worth reading.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

**ENGX207 Creative Writing (3 Credits)**
Examines and explores the different genres of creative writing through the study of prose and poetry by British, American, French and Russian authors from the Romantics to the present. Introduces the various elements of creative writing including plot, point of view, character, dialogue, voice and theme.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

**ENGX210 Writing Italian Food (3 Credits)**
Explores the history and customs of food, olive oil, and wine in Perugia and the surrounding region through food writing and visits to local restaurants, cheese makers, vineyards, and olive groves. Examines combinations of historical moment and type of food, such as the question of pizza, the origin of the aperitivo, and the arrival of coffee in Italy, while focusing on what makes a compelling article, techniques and skills related to food writing, and approaches to publication in online and print platforms.
**Additional Information:** This course is offered as part of the Maryland-in-Perugia study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11294. Education Abroad processes registrations for this course on behalf of students.

**ENGX300 The Image of Barcelona in Literature (3 Credits)**
After the Olympic Games of 1992, Barcelona became an international tourist destination; but a short visit cannot account for the cultural complexities of the Catalan capital. In order to know any city, to "dwell" in it, we need to become familiar with its oral history, paintings, architecture, sculpture, and literary texts.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**ENGX302 From Literature to Social Media: Reading and Writing Italian Food (3 Credits)**
Focuses on one important aspect (present in both fiction and nonfiction writing): the expression and description of sensory experiences through words. Examining literature as well as nonfictional food writings, students will discover that the art of writing about food and drink involves not only an interest in the gustatory experience, but also an ability to translate sensory experiences into words.
**Formerly:** ENGL379I.
**Additional Information:** This course is offered as part of the Maryland-in-Perugia study abroad program. Umbria Institute Course Code: ENG325. More information at ter.ps/UMPerugia.

**ENGX303 Italian Tales and Stories: Creative Writing Through Literary Models (3 Credits)**
Explores the process of transforming sensory impressions, individual feelings, personal experiences, and factual information into engaging and effective works of creative fiction and non-fiction. Students will read from a cross-section of Italian authors dealing with a wide range of topics and issues. They will also generate their own writing through a series of exercises designed to help the writer tap into new levels of awareness and creative energy. Students will also be involved in a series of 'literary walks' aimed at enhancing their ability to gather information from the exploration of Italian natural and urban landscapes.
**Formerly:** ENGL379W.
**Additional Information:** This course is offered as part of the Maryland-in-Perugia study abroad program. Umbria Institute Course Code: ENG 340. More information at ter.ps/UMPerugia.

**ENGX305 Scandinavian Crime Fiction (3 Credits)**
In Scandinavian crime fiction, the most fantastic murders take place, families fall apart, their dark secrets are exposed, and the validity of the Scandinavian countries' welfare system is questioned - all of this described in a distinctly Scandinavian tone and style.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**ENGX306 Creative Writing (3 Credits)**
Explores the creative process, giving students concrete ways to enhance their creative thought and writing. Through writing assignments and numerous inventive classroom exercises, students learn how to write more interesting characters, fascinating plots and colorful stories.
**Credit Only Granted for:** ENGX203 or ENGX306.
**Formerly:** ENGX203.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ENGX307 Advanced Video Production and Post-Production (3 Credits)**
Brings students' fluency of cinematic language to a more advanced stage by expanding upon and synthesizing the shooting and editing techniques. The class introduces the conceptual and technical framework necessary to shoot and edit dual-system sound films, block and shoot dialogue scenes, perform dramatic analysis to scripts, and apply that analysis to a more sophisticated use of camera work and complex editing strategies.
**Additional Information:** This course is offered as part of the Maryland-in-Romestudy abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ENGX310 Mafia, Murder, and Mystery: Crime in Italian and American Cinema (3 Credits)**
Studies how mafia and organized crime are presented in Italian and American cinematic texts. The course will examine the different expressions of the crime film genre, which dates back to the beginnings of filmmaking, focusing on the technical, visual, and aesthetic aspects of crime films.
**Cross-listed with:** CINX310.
**Additional Information:** This course is offered as part of the Maryland-in-Perugia study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMPerugia. Education Abroad processes registrations for this course on behalf of students.

**ENGX311 European Storytelling: From Homer to Harry Potter (3 Credits)**
An introduction to European oral tradition, as expressed in European myth-cycles, legends and fairytales, from the earliest known sources up to and including modern uses of this tradition.
**Additional Information:** This course is offered as part of the Maryland-in-Copenhagen study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMCopenhagen. Education Abroad processes registrations for this course on behalf of students.

**ENGX312 Live, Love or Die in Italy: Major Italian Writers in English Translation II (3 Credits)**
As a sequel to Major Italian Writers I, this course explores modern and contemporary Italian literature through the reading, analysis, and discussion of late eighteenth, nineteenth, and twentieth century Italian novels in translation, by authors such as Foscolo, Verga, Camillo Boito, D'Annunzio, Svevo, Carlo Levi, and Morante. Students are encouraged to compare and contrast authors and books and to identify and discuss major literary periods and genres (such as Romanticism, Realism, Modernism and Neo-realism).
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ENGX313 Creative Non-Fiction Writing (3 Credits)**
Nonfiction is a genre that has grown more diverse and creative than ever, embracing all styles from serious to whimsical and encompassing every topic imaginable. This course will focus on the creative process and the generation of several different forms of writing within the nonfiction genre, including the personal essay, the memoir, biography, and the journalistic or magazine profile. Through the examination of professional examples of creative nonfiction, discussion, and critiques, students will become acquainted with the techniques and tools used to build a strong portfolio of literary and journalistic pieces.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ENGX314 The Mafia in Italian Society, Literature and Film (3 Credits)**
Explores representations of the Italian Mafia in literature and cinema, with reference also to the Italian-American context. Students will be introduced to the history of the mafia, starting from its beginnings in Sicily, and follow its historical and geographical evolution within, and also outside, Italy. The course will make reference to Italian literary texts as well as Italian and Italian-American cinematic representations of the phenomenon.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ENGX315 Travel Writing Workshop (3 Credits)**
Students will learn the fundamentals of travel and destination-based writing, with the opportunity to practice the craft in various formats, from personal narratives to feature writing to service journalism. They will develop the necessary skills to write compellingly and sensitively about travel, avoiding cliches and cultural faux pas. Occasional guest lecturers working in the field will shed further light on these topics. Interested students will have the chance, with guidance from their instructor, to pitch or to send finished pieces on spec to local or special Italy-interest publications.
**Credit Only Granted for:** ENGL369M or ENGX315.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

**ENGX316 Rome on Screen and in Print (3 Credits)**
Focuses on the city of Rome and explores past and present representations of the eternal city in Italian literature and film. Focuses on late 19th- and 20th-century Rome from the point of view of selected works of Italian literature and cinema in which the city plays a prominent role. Students identify and analyze the connections between texts, ideas, or cultural artifacts and the human experience and/or perception of the world.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ENGX400 Fashion, Media and Communication (3 Credits)**
Fashion Writing is an extremely important aspect of cultural and creative nonfiction prose. With the rise of internet and mass journalism worldwide, the fashion and accessories industry has become increasingly focused on getting across the messages to audiences of all ages and backgrounds.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

**ENGX401 Shakespeare's Italian Plays (3 Credits)**
The intensive study of five or six of Shakespeare's comedies and tragedies set in Italy, ancient and early modern, with attention to English attitudes toward Italy and Shakespeare's use of Italy, the nature of comedy and tragedy, and the shape of Shakespeare's career.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. American University of Rome Course code: ENG 301 / ENG 309. More information at ter.ps/UMRome.

**ENGX404 Travel Writing (3 Credits)**
The world is full of fascinating people and places - and stories waiting to be told. Travel writers capture these stories and pass them on to their readers. Good travel writers make us care. In this class, you will learn how to identify relevant stories, how to gather material and how to release all of this in well-written pieces. Our main focus is narrative journalism - the kind of stories you would normally see as features in travel magazines.
**Additional Information:** This course is offered as part of the Maryland-in-Copenhagen study abroad program. More information at ter.ps/UMCopenhagen.

**ENGX405 Hans Christian Andersen and the Danish Golden Age (3 Credits)**
Hans Christian Andersen (1805-1875) is internationally known as the writer of fairy tales. Children all over the world know The Ugly Duckling, The Emperor's New Clothes, The Little Mermaid, The Princess and the Pea and other tales. But Andersen also wrote plays, novels, poems, travelogues and songs. This course will be a study of approximately 30 fairy tales by Hans Christian Andersen (1805-75) as well as extracts from his travelogues, poems, diaries and his autobiography, The Fairy Tale of My Life.
**Additional Information:** This course is offered as part of the Maryland-in-Copenhagen study abroad program. More information at ter.ps/UMCopenhagen.

**ENGX406 The Literature of War - Europe and WWI (3 Credits)**
Examines the various literary responses to war and the ways in which artists and writers have negotiated power, violence, and resistance within the context of military conflict.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ENGX407 Italian Women Writers (3 Credits)**
This course presents an overview of women's fiction in Italy from the turn-of-the-century context, with writers such as Neera and Sibilla Aleramo, to the present day, with Elena Ferrante and Dacia Maraini. The course will examine women's changing role within Italian society and issues such as sexual violence, motherhood, the search for self-determination and autonomy and paths to political awareness.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ENGX410 Literary Editing and Publishing (3 Credits)**
Designed to be an overview in literary editing for publication and will explore in-depth the publishing industry--the history, current trends, future possibilities--for both writers and editors. Students will develop many skills related to the publishing industry, such as copyediting, revision, query letters, literary critique and analysis, and submitting and reviewing work.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ENGX411 Major American Authors: Hemingway (3 Credits)**
Examines the life and expatriate writings of Ernest Hemingway, exploring his themes, style, and narrative technique. We will examine not only issues of style and technique but also how Hemingway's expatriate experience influenced his writing. Our major objective in this class will be to acquaint ourselves with the contributions of Hemingway to American literature through close reading and careful discussion of much of his works.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ENGX412 Sense of Place in European Literature (3 Credits)**
Explores and identifies the interrelation between place and text. We discover comparative perspectives on European literature through in-depth analysis and close readings of texts written by modern and classical European writers. Our geographic focus is primarily Denmark, Germany, the Baltic region, and Russia. The European Humanities core course includes a total of 18 classes, a core course week with a short study tour to the island of Fano, and a six day long study tour to Berlin, Germany.
**Additional Information:** This course is offered as part of the Maryland-in-Copenhagen study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMCopenhagen. Education Abroad processes registrations for this course on behalf of students.

**ENGX413 Colonial Literatures, Postcolonial Perspectives (3 Credits)**
Introduces students to a selection of novels and short fiction written within the context of the European colonization of South Asia, South East Asia, Africa, the Middle East and the Americas. Focuses on non-European authors and the experience of colonialism from a non-European perspective. Explores postcolonial theory and its relevance to the discipline of Comparative Literature.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**ENGX414 Presentations of London in Modern European Literature and Film (3 Credits)**
London has been the largest European city for the last two-and-a-half centuries and has played a dominant role in European culture since that time. This course explores the ways in which this idea is presented in examples of literature and film from the late nineteenth century to the present day.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**ENGX415 Terror, Transgression and Astonishment: the Gothic in the Long Nineteenth Century (3 Credits)**
Explores why writers seem compelled to write about the gruesome, sordid, creepy, or just terrifying aspects of humanity through analyzing Gothic fiction in the late eighteenth century to the nineteenth century. Students will explore genres such as ghost stories or the supernatural, while also looking at a few texts that are considered "unclassifiably weird," to see how the Gothic and related genres emerge in relation to cultural and social trends.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**ENGX416 James Baldwin and American Civil Rights (3 Credits)**
The movement for Civil Rights and Black Power in the US marked a decisive phase in the making of our contemporary world. This course uses the novels, short stories, and autobiographical reportage of James Baldwin as a framework for exploring the Civil Rights movement and Black Power, the relationship of race and sexuality, the "Americanness" of American literature, and Baldwin's own relationship with the Civil Rights movement as an openly homosexual man.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**ENGX417 Time, Narrative and Culture (3 Credits)**
Examines how an understanding of narrative informs a wider concept of culture with a focus on strange temporal structures and time-experiments in contemporary fiction and their effect on how we experience time. Students will analyze texts that exhibit a variety of temporal structures including backwards narration, flashforward, trans-historical jumps, and fuzzy temporality, as well as explore philosophical and social theories of time.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**ENGX421 In an Ideal World: Utopias from Plato to the Present (3 Credits)**
Delves into the idea of the Utopia as both its own literary genre and as a means of thinking about political ideals and practice. This course will look at the development of the Utopia genre across time, ways in which fiction serves as a way to debate and comment on political practice and how political arguments are portrayed through fictional and metaphorical devices.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**ENGX422 American Money: Novels 1793-1930 (3 Credits)**
Explores the great American subject of money from the foundations of the Republic to the Jazz Age. Students will study works of fiction that focus on capital, thrift, production, high finance, self-sufficiency, and fraud, and consider the effects of the recent banking crisis and history and psychology of financial behavior, and of money itself.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**ENGX423 After Postcolonialism (3 Credits)**
Explores the limits and boundaries of postcolonial literature. Offers a contemporary focus (including the War on Terror and Islamophobia) and takes into account regions that are not strictly postcolonial (including China and the U.S.) Uses critical theory to extend the idea of the "postcolonial" and study how we conceptualize the present moment.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**ENGX425 How Are We Feeling?: Affect and/in Contemporary Literature and Culture (3 Credits)**
Explores how the social, psychological, and philosophical understandings of the way we feel, and represent or evoke feeling, influence how authors use aesthetics, audience, and ethics in relation to affective states such as remorse, boredom, nostalgia, fascination, rebellion, and expectation. This course examines a selection of fiction, poetry, creative nonfiction, life writing, television, and film to understand how cultural texts represent the affective experiences of contemporary life.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**ENGX426 The Politics of Irish Literature, from the Eighteenth to the Twentieth Century (3 Credits)**
Irish writing in the English language has re-shaped cultural history through the interventions of great originals such as Yeats, Joyce, and Beckett. This course looks at Irish literature through a political lens through the study of texts by a variety of authors and relates these works to historical contexts such as the Union with Britain, the Famine of the 1840s, the cultural revival at the turn of the twentieth century, the Irish revolution, and the Northern Irish crisis.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**ENGX427 Poetry and Poetics of Resistance (6 Credits)**
Provides students with a global viewpoint of poetry and poetics of resistance, tracing similarities and finding differences in the various poetic approaches used by authors who live in nations without a State, exiled writers, and dissident voices within mainstream cultural politics. Students will examine different works on exile, both physical and internal, by poets such as Homi Bhabha, Julia Kristeva, Arjun Appadurai, Salman Rushdie, George Lamming, and Edward Said.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students. Please note this course spans two semesters (one academic year).

**ENGX430 The Crisis of Culture: Literature and Politics 1918-1948 (3 Credits)**
Explores the ways in which the writers of the period following the First and Second World Wars engaged with the turbulent politics and dramatically changing social life in Great Britain. Explores the paradigm shift of a post-war Europe as a darker, more complex, and less certain epoch began.
**Additional Information:** This course is offered as part of the ARHU-in-London study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/ARHULondon. Education Abroad processes registrations for this course on behalf of students.

# ENMA - Engineering, Materials

**ENMA150 Materials of Civilization (3 Credits)**
The discovery of new materials has shaped history and built civilizations. The utilization, properties and production techniques of materials from the Bronze Age up through modern times and into the future will be traced. These materials are explained by considering their atomic structure, the binding forces between atoms and their arrangement, and how controlling the structure controls the materials properties.

**ENMA165 Introduction to Programming with Python (3 Credits)**
Introduces concepts of computer programming using Python from the point-of-view of engineers and scientists (as opposed to computer science). Students will learn the fundamentals of writing and implementing code, and exposed to practical aspects of programming as may be relevant to their studies and careers in the materials field. Topics/activities of note include data management and analysis, laboratory-related scripting, simple automation, and introduction to computational materials concepts.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENEE140 or ENMA165.

**ENMA180 Materials Science and Engineering: The Field and the Future (1 Credit)**
Overview of the profession and the components of the Materials Science and Engineering program. Students will become familiar with the departmental faculty, areas of specialization within MSE, professional society student chapter, research opportunities and other resources available to students.
**Restriction:** Must be in a major in ENGR-A. James Clark School of Engineering.

**ENMA201 Bigger, Faster, Better: The Quest for Absolute Technology (3 Credits)**
Can one prevent the transformation of technology from a friend to foe? Constant technological change characterizes our current lives and future, but ambivalence marks our relationships with technology. Students will be introduced to concepts necessary to understand scientific, engineering and societal driving forces of selected technological transformations, and the conflicts inherent in introduction of new technologies. We investigate approaches to judicious implementation of technology to prevent it changing from friend to foe.
**Credit Only Granted for:** ENMA201 or ENMA289A.
**Formerly:** ENMA289A.

**ENMA300 Introduction to Materials Engineering (3 Credits)**
Structure of materials, chemical composition, phase transformations, corrosion and mechanical properties of metals, ceramics, polymers and related materials. Materials selection in engineering applications.
**Prerequisite:** ENES100; and permission of ENGR-Materials Science & Engineering department.
**Corequisite:** MATH241.
**Recommended:** PHYS261 and PHYS260.
**Restriction:** Permission of ENGR-Mechanical Engineering department. Cross-listed with ENME382.
**Credit Only Granted for:** ENMA300 or ENME382.

**ENMA301 Modern Materials Engineering (3 Credits)**
Five topical areas will be presented, each leading up to specific applications that have recently come to market or are currently experiencing heavy research and development. The goal of each module will be to introduce the basic materials science principles necessary to understand these new areas.
**Prerequisite:** ENMA180; or students who have taken courses with comparable content may contact the department. And ENMA300; and permission of ENGR-Materials Science & Engineering department.

**ENMA312 Experimental Methods in Materials Science (3 Credits)**
Introduction to experimental methods in materials characterization; synthesis of colloidal nanoparticles; X-ray diffraction and light scattering; optical microscopy; thermal conductivity and expansion; electrical measurements; heat capacity; computational materials design.
**Prerequisite:** ENMA300.
**Corequisite:** ENMA460.
**Restriction:** Junior standing or higher.

**ENMA362 Mechanical Properties (3 Credits)**
Overview of Mechanical Behavior, Elastic Behavior, Dislocations, Plastic Deformation, Strengthening of Crystalline Materials, Composite Materials, High Temperature Deformation of Crystalline Materials, Permanent Deformation of Noncrystalline Materials, Tensile Fracture at Low Temperatures, Engineering Aspects of Fracture, High Temperature Fracture, Fatigue, and Experimental determination of Mechanical Properties including Hardness of Metals and Strength of Metals, Polymers, Ceramics and Composites.
**Prerequisite:** ENMA300.
**Restriction:** Junior standing or higher; and permission of ENGR-Materials Science & Engineering department.

**ENMA386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Must have Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.
**Restriction:** Junior standing or higher.

**ENMA400 Introduction to Atomistic Modeling in Materials (3 Credits)**
This is an introductory course designed to study atomistic modeling and simulation techniques used in materials research. This course covers the theories, methods, and applications of atomistic-scale modeling techniques in simulating, understanding, and predicting the properties of materials. Specific topics include: molecular statics using empirical force fields; quantum mechanical methods including density functional theory; molecular dynamics simulations; and Monte Carlo and kinetic Monte Carlo modeling.
**Prerequisite:** ENMA300, MATH206, and ENMA460.
**Recommended:** Basic knowledge in quantum mechanics (preferred but not required); basic knowledge in statistical mechanics (preferred but not required). Also offered as: ENMA600.
**Credit Only Granted for:** ENMA489A, ENMA400, ENMA698A, or ENMA600.
**Formerly:** ENMA489A.

**ENMA401 Continuum Modeling of Materials (3 Credits)**
Introduces continuum modeling techniques in materials science and engineering. This course covers and emphasizes the applications of continuum modeling techniques using COMSOL software package in simulating a range of materials phenomena and properties. Specific topics of continuum modeling include: The construction and analyses of continuum models using COMSOL software package; Structural mechanics; Heat transfer; Electrical current; Chemical species transport; Fluid flow; Multi-physics models coupling above phenomena.
**Prerequisite:** ENMA362, PHYS270, PHYS271, and MATH246; or equivalent; and ENMA165 or MATH206.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA401 or ENMA489C.
**Formerly:** ENMA489C.

**ENMA410 Materials for Energy I (3 Credits)**
The goal is to demonstrate the role of materials in solving one of the most critical socio-economic issues of our time, affordable and sustainable energy. There will be a discussion of U.S. and global energy and related environmental issues. Topics covered include: fuel cells and batteries (electrochemical energy conversion and storage); catalysts and membrane separations (fossil fuel and biomass energy conversion); and nuclear fuels.
**Prerequisite:** Minimum grade of C- in ENMA300; and permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA410 or ENMA489H.
**Formerly:** ENMA489H.

**ENMA411 Materials for Energy II (3 Credits)**
Demonstrates the role of materials in solving one of the most critical socio-economic issues of our time, affordable and sustainable energy. Materials for Energy is a two-part course based on material functionality; however, they are independent and neither is a prerequisite for the other. Materials for Energy II will focus on electrical, optical, thermal, and mechanically functional materials for energy devices. Solar cells, solar fuel, solar thermal, energy efficient lighting, building energy, thermoelectric and wind energy will be covered.
**Prerequisite:** Minimum grade of C- in ENMA300; and permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA411 or ENMA489I.
**Formerly:** ENMA489I.

**ENMA412 Fundamentals of Photovoltaics (3 Credits)**
Overview of the fundamentals of photovoltaic devices, including principles of operation, with emphasis on the materials science aspects of the different technologies available.
**Prerequisite:** ENMA300; and permission of ENGR-Materials Science & Engineering department.

**ENMA414 Introduction to Solid State Ionics (3 Credits)**
Solid State Ionics is the study of point defects in crystalline and non-crystalline solids; defect equilibria and transport; the influence of chemical and electric potentials, interfaces, and association; and the application of ionically conducting solids in solid-state electrochemical transducer systems and devices.
**Prerequisite:** ENMA300; and permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA414 or ENMA489W.
**Formerly:** ENMA489W.

**ENMA421 Design of Composites (3 Credits)**
Fundamentals of design, processing and selection composite materials for structural applications will be covered. The topics include a review of all classes of materials, an in-depth analysis of micro and macro mechanical behavior including interactions at the two-phase interfaces, modeling of composite morphologies for optimal microstructures, material aspects, cost considerations, processing methods including consideration of chemical reactions and stability of the interfaces, and materials selection considerations.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA421 or ENMA489A.
**Formerly:** ENMA489A.

**ENMA422 Radiation Effects of Materials (3 Credits)**
Ionizing radiation, radiation dosimetry and sensors, radiation processing, radiation effects on: polymers, metals, semiconductors, liquids, and gases. Radiation in advanced manufacturing, radiation-physical technology.
**Prerequisite:** ENMA300; and permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA422 or ENMA489E.
**Formerly:** ENMA489E.

**ENMA425 Introduction to Biomaterials (3 Credits)**
Examination of materials used in humans and other biological systems in terms of the relationships between structure, fundamental properties and functional behavior. Replacement materials such as implants, assistive devices such as insulin pumps and pacemakers, drug delivery systems, biosensors, engineered materials such as artificial skin and bone growth scaffolds, and biocompatibility will be covered.
**Recommended:** ENMA300.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** BIOE453, CHBE457, or ENMA425.

**ENMA426 Reliability of Materials (3 Credits)**
Students are taught the basic degradation mechanisms of materials, through the understanding of the physics, chemistry, mechanics of such mechanisms. Mechanical failure mechanisms concentrate on fatigue, and creep. Chemical failure mechanisms emphasize corrosion and oxidation. Physical mechanisms such as diffusion, electromigration, defects and defect migration, surface trapping mechanisms, charge creation and migration are also included.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA426 or ENMA489R.
**Formerly:** ENMA489R.

**ENMA431 Nanomechanics of Biomaterials (3 Credits)**
Focuses on the latest scientific developments and discoveries in the nanoscale structure and properties of biological materials. The course begins with introductory lectures on the various nanostructures of biomaterials, and their physiological roles under mechanical forces. General aspects of biopolymers, protein folding, and self-assembly are also covered. Next, a series of in-depth lectures are presented on the characterization methods of nanomechanical properties using single molecule techniques. Finally, current applications of nanobiomaterials in the area of molecular machines, molecular self-assembly, and nanoscaffold are discussed.
**Prerequisite:** ENMA300; and permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA431 or ENMA489B.
**Formerly:** ENMA489B.

**ENMA435 Wide Bandgap Materials and Devices (3 Credits)**
Presents the materials science of wide bandgap materials and analyzes the defects present in such materials from a device performance point of view.
**Prerequisite:** ENMA300 and ENMA465.
**Corequisite:** ENMA460.
**Jointly offered with:** ENMA635.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA435 or ENMA635.

**ENMA436 Introduction to Quantum Materials and Devices (3 Credits)**
Quantum materials and devices are an emerging field in materials engineering and physics which offer new approaches to electronics and photonics. This course serves as an introduction to quantum materials and their applications in quantum technologies. It will teach concepts needed to understand the quantum mechanical properties of materials and connect their fundamental properties to quantum device applications. Topics will include low-dimensional materials, strongly correlated electron systems, topology in solids, and light-matter interactions
**Prerequisite:** ENMA460 and ENMA461 .
**Jointly offered with:** ENMA636.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA436 or ENMA636.

**ENMA437 Machine Learning for Materials Science (3 Credits)**
Familiarizes students with basic as well as state of the art knowledge of machine learning and its applications to materials science and engineering. Covers the range of machine learning topics with applications including feature identification and extraction, determining predictive descriptors, uncertainty analysis, and identifying the most informative experiment to perform next. One focus of the class is to build the skills necessary for developing an autonomous materials research system, where machine learning controls experiment design, execution, and analysis in a closed-loop.
**Prerequisite:** MATH206, ENMA300, and MATH461.
**Jointly offered with:** ENMA637.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA489L, ENMA437 or ENMA637.
**Formerly:** ENMA489L.

**ENMA440 Nano Plasma Processing of Materials (3 Credits)**
Sustaining mechanisms of plasmas are covered, especially low-pressure electrical gas discharges, fundamental plasma physics, sheath formation, electric and magnetic field effects, plasma-surface interactions in chemically reactive systems, plasma diagnostic techniques and selected industrial applications of low pressure plasmas.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA440, ENMA489P, ENMA640, or ENMA698P.
**Formerly:** ENMA489P.

**ENMA441 Characterization of Materials (3 Credits)**
Techniques to characterize the properties of materials whose characteristic dimensions range from nanometers to macroscopic. These include conventional crystalline and noncrystalline materials, with a special attention to materials of current technological interest. The course will include recent results from the scientific literature.
**Prerequisite:** ENMA300, ENMA165 or MATH206.
**Restriction:** Permission of ENGR-Materials Science & Engineering department; and senior standing.
**Credit Only Granted for:** ENMA489T or ENMA441.
**Formerly:** ENMA489T.

**ENMA442 Nanomaterials (3 Credits)**
An exploration of materials whose structure places them at the boundary between small objects and large molecules. Having characteristic dimensions in the range of 1-100 nanometers, these materials are difficult to synthesize and characterize but are nevertheless at the forefront of science and technology in many fields. Also, the methods for creating, manipulating and measuring these materials with an emphasis on the current scientific literature will be covered. The novel properties and potential applications will also be addressed.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA442 or ENMA489N.
**Formerly:** ENMA489N.

**ENMA443 Phontonic Materials, Devices and Reliability (3 Credits)**
The course focuses on the understanding of the basic optical processes in semiconductors, dielectrics and organic materials. The application of such materials in systems composed of waveguides, light emitting diodes and lasers, as well as modulators is developed.
**Restriction:** Permission of ENGR-Materials Science & Engineering department; and junior standing or higher.
**Credit Only Granted for:** ENMA443 or ENMA489Z.
**Formerly:** ENMA489Z.

**ENMA445 Liquid Crystals and Structured Soft Materials (3 Credits)**
Elective course on the properties and behavior of liquid crystals and related soft materials, and their relationship to biomaterials and to applications.
**Prerequisite:** MATH246, PHYS270, and PHYS271.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA445 or ENMA489L.
**Formerly:** ENMA489L.

**ENMA460 Introduction to Solid State Physics (3 Credits)**
Classes of materials; introduction to basic ideal and real materials' behavior including mechanical, electrical, thermal, magnetic and optical responses of materials; importance of microstructure in behavior. One application of each property will be discussed in detail.
**Prerequisite:** PHYS271, PHYS270, and MATH241.
**Cross-listed with:** PHYS431.
**Restriction:** Junior standing or higher; and must be in the Engineering: Materials Science program or Physics program.
**Credit Only Granted for:** ENMA460 or PHYS431.
**Additional Information:** Materials Engineering students take ENMA460 and Physics students take PHYS431.

**ENMA461 Thermodynamics of Materials (3 Credits)**
Thermodynamic aspects of materials; basic concepts and their application in design and processing of materials and systems. Topics include: energy, entropy, adiabatic and isothermal processes, internal and free energy, heat capacity, phase equilibria and surfaces and interfaces.
**Prerequisite:** ENMA300.
**Restriction:** Junior standing or higher.

**ENMA463 Macroprocessing of Materials (3 Credits)**
Processing of modern, bulk engineering materials. Raw materials, forming, firing, finishing and joining. More emphasis on metals and ceramics than polymers.
**Prerequisite:** ENMA300.
**Restriction:** Junior standing or higher.

**ENMA464 Environmental Effects on Engineering Materials (3 Credits)**
Introduction to the phenomena associated with the resistance of materials to damage under severe environmental conditions. Oxidation, corrosion, stress corrosion, corrosion fatigue and radiation damage are examined from the point of view of mechanism and influence on the properties of materials. Methods of corrosion protection and criteria for selection of materials for use in radiation environments.
**Prerequisite:** ENMA300. Or permission of ENGR-Materials Science & Engineering department; and permission of instructor.

**ENMA465 Microprocessing Materials (3 Credits)**
Micro and nanoscale processing of materials. Emphasis on thin film processing for advanced technologies.
**Prerequisite:** ENMA300.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA363, ENMA489B, or ENMA465.
**Formerly:** ENMA363.

**ENMA466 Advanced Materials Fabrication Laboratory (3 Credits)**
This course allows students an opportunity to study advanced materials systems in depth through a combination of lectures and hands-on laboratory experiments. Students will be trained in materials processing and characterization techniques. Each student will fabricate materials and devices in our state-of-the-art nanofabrication clean room facility (Fablab), as well as evaluate them using a variety of characterization techniques.
**Prerequisite:** ENMA465; and permission of ENGR-Materials Science & Engineering department.

**ENMA470 Materials Selection for Engineering Design (3 Credits)**
Students will learn about materials classes, properties, limitations and applications and the methodology of materials selection in engineering design.
**Prerequisite:** Permission of ENGR-Materials Science & Engineering department.
**Restriction:** Junior standing or higher.
**Credit Only Granted for:** ENMA 470 or ENMA 489O.
**Formerly:** ENMA 489O.

**ENMA471 Kinetics, Diffusion and Phase Transformations (3 Credits)**
Fundamentals of diffusion, the kinetics of reactions including nucleation and growth and phase transformations in materials.
**Prerequisite:** Must have completed or be concurrently enrolled in ENMA461.
**Restriction:** Junior standing or higher; or permission of ENGR-Materials Science & Engineering department.

**ENMA472 Additive Manufacturing of Materials (3 Credits)**
Additive manufacturing approaches for metals, ceramics and polymers will be explored in terms of manufacturability and how processing parameters affect microstructure and properties. The course will include projects, including a Terrapin Works project to design and build a part, to develop an understanding of the current state of additive manufacturing, its future promise and its limitations.
**Prerequisite:** ENMA300.
**Restriction:** Must be in Engineering: Materials Science program.
**Credit Only Granted for:** ENMA472 or ENMA672.

**ENMA473 Engineering Using High Strength Metals and Alloys (3 Credits)**
This is a class focused on the materials engineering challenges of applying high strength metals and alloys to solutions. The extraordinary properties of these alloys derive from (1) highly metastable microstructures, (2) high strengths and melting points of the base metals, (3) complicated processing and fabrication procedures, and (4) their resulting complex behavior in extreme environments. This course will give you the knowledge base you need to select, apply and troubleshoot the performance of high strength metals and alloys in a variety of applications.
**Prerequisite:** ENMA300, ENMA362, and ENMA461; and permission of ENGR-Materials Science & Engineering department.

**ENMA474 Introduction to Computational Materials Science (3 Credits)**
This is an introductory course aiming for junior and senior undergraduate students to study atomistic modeling and simulation techniques that are used in materials science. This course covers the theories and applications of atomistic scale modeling techniques to simulate, understand, and predict the properties of materials. Topics include: molecular statics, quantum mechanical methods, molecular dynamics simulations and Monte Carlo simulations.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA474 or ENMA489A.
**Formerly:** ENMA489A.

**ENMA475 Fundamentals of Diffraction Techniques in Materials Science (3 Credits)**
This course looks at the advanced methods of x-ray scattering/diffraction available thanks to the more powerful sources available to us. The availability of these sources enables us to study liquid crystals, polymers, nanomaterials, quasiorganized materials (including nano) and disordered materials.
**Prerequisite:** MATH246, PHYS270, and PHYS271.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA475 or ENMA489M.
**Formerly:** ENMA489M.

**ENMA476 NanoManufacturing: Materials Design and Systems Integration (3 Credits)**
The fundamentals of nanomanufacturing based on state-of-the-art and future prospects in materials design and systems integration. The course examines functional nanomaterials design and synthesis, structural assembly from nanoscale to macroscale, and device fabrication. Distinct from the current curricular paradigm in many nanotechnology programs that focus on underlying science, this course emphasizes the immediate need for scale-up, process robustness, and system integration issues. Featuring case studies from industry, end of chapter problems, and study questions, the course is for upper-level undergraduate and graduate students, who are interested in the future of manufacturing innovation and technology.
**Restriction:** Must be in Engineering: Materials Science program.

**ENMA481 Introduction to Electronic and Optical Materials (3 Credits)**
Electronic, optical and magnetic properties of materials. Emphasis on materials for advanced optoelectronic and magnetic devices and the relationship between properties and the processing/fabrication conditions.
**Prerequisite:** ENMA300; or students who have taken courses with comparable content may contact the department.

**ENMA482 Introduction to Electron Microscopy (3 Credits)**
An introduction of the basic principles of operation for modern electron microscopes. Details will be given on the construction of microscopes, their basic operation, and the types of questions that can be addressed with an electron microscope. Emphasis will be placed on a conceptual understanding of the underlying theories. Where appropriate, mathematical descriptions will be utilized. Upon completion of this course, students will be excepted to have a basic understanding sufficient to give interpretations of microscopy images and to suggest the correct tool or approach for certain research studies.
**Prerequisite:** PHYS142, PHYS122, or PHYS260.
**Credit Only Granted for:** ENMA482 or ENMA489J.
**Formerly:** ENMA489J.

**ENMA484 Fundamentals of Finite Element Modeling (3 Credits)**
A brief review of mechanical behavior of materials, introduction to Finite Element Modeling (FEM), and procedures for predicting mechanical behavior of materials by FEM using computer software (at present ANSYS). The FEM procedures include, setting up the model, mesh generation, data input and interpretation of the results.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Credit Only Granted for:** ENMA484 or ENMA489F.
**Formerly:** ENMA489F.

**ENMA486 Seminar in Materials Science and Engineering (1 Credit)**
Current research in materials science and engineering and related fields. The lectures are presented by scientists and engineers from academia, national laboratory, US government, etc., in the format of seminars.
**Restriction:** Must be in Engineering: Materials Science program.

**ENMA487 Capstone Preparation (1 Credit)**
In preparation for the senior level design course, students will do background research and develop white papers from which teams will form around short listed design projects. The projects should focus on a society, industry, military or technological based problem in Materials Science and Engineering leading to a design and strategy to address the problem in the following course, ENMA 490. The course will include written and oral presentations of the white papers and team proposals.
**Restriction:** Must be in Engineering: Materials Science program; and senior standing; and permission of ENGR-Materials Science & Engineering department.

**ENMA489 Selected Topics in Engineering Materials (3 Credits)**
Selected topics of current importance in materials science and engineering.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Repeatable to:** 12 credits if content differs.

**ENMA490 Materials Design (3 Credits)**
Capstone design course. Students work in teams on projects evaluating a society or industry based materials problem and then design and evaluate a strategy to minimize or eliminate the problem; includes written and oral presentations.
**Prerequisite:** Minimum grade of C- in ENMA487.
**Restriction:** Senior standing.

**ENMA495 Polymeric Engineering Materials I (3 Credits)**
Study of polymeric engineering materials and the relationship to structural type. Elasticity, viscoelasticity, anelasticity and plasticity of single and multiphase materials. Emphasis is on polymetric materials.
**Prerequisite:** ENMA300.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.

**ENMA496 Polymeric Materials: Structure, Property, and Processing (3 Credits)**
An intermediate level treatment of structures of polymers. An introduction to mechanical properties and processing of polymeric materials. Emphasis will be on how to establish the structure-property relationship and on how to achieve such understanding via different characterization methods.
**Prerequisite:** ENMA300; and permission of ENGR-Materials Science & Engineering department.
**Cross-listed with:** CHBE496.
**Credit Only Granted for:** ENMA496 or CHBE496.

**ENMA499 Senior Laboratory Project (1-3 Credits)**
Students work with a faculty member on an individual laboratory project in one or more of the areas of engineering materials. Students will design and carry out experiments, interpret data and prepare a comprehensive laboratory report.
**Restriction:** Permission of ENGR-Materials Science & Engineering department; and senior standing.

# ENME - Engineering, Mechanical

**ENME201 Careers in Mechanical Engineering (1 Credit)**
The Mechanical Engineering Curriculum, Career Paths. Research areas in the Mechanical Engineering Department. The Mechanical Engineering Profession.

**ENME202 Computing Fundamentals for Engineers (3 Credits)**
Introduction to computational tools for the solution of engineering problems. C++ & MATLAB programming including branching and loops, functions, file handling, arrays, and data structures. Students will be introduced to object-oriented programming, basic computing, algorithms, and principles of software engineering.
**Corequisite:** Must be concurrently enrolled in MATH141.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Credit Only Granted for:** ENAE202 or ENME202.

**ENME207 Fabrication and Machine Tool Practices for Engineering (2 Credits)**
In order to make the best decisions in product design and development, it is important to understand the capabilities and limitations of different fabrication techniques. Students will learn to identify machine parts and functions, define machine shop terminology, calculate shop formulas and theories, execute machine operations, and apply proper measuring tools.
**Prerequisite:** PHYS161. And ENME272; or students who have taken courses with comparable content may contact the department.
**Restriction:** Permission of ENGR-Mechanical Engineering department.

**ENME208 Introduction to Automotive Engineering and Design (2 Credits)**
Selected concepts in automotive engineering and design at the introductory level utilizing the Terps Racing Baja SAE student project as a learning instrument. This class compliments ENME408, Automotive Design, which focuses on the Terps Racing Formula SAE car.
**Prerequisite:** ENES100.
**Recommended:** ENES220; and ENES221.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Repeatable to:** 4 credits if content differs.

**ENME272 Introduction to Computer Aided Design (2 Credits)**
Fundamentals of CAD, using solid modeling packages (Pro/E, SolidWorks, and Autodesk Inventor). Two and three dimensional drawing. Dimensioning and specifications. Introduction of CAD based analysis tools. Students will complete a design project.
**Prerequisite:** Must have completed or be concurrently enrolled in MATH141.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Credit Only Granted for:** ENME414 or ENME272.

**ENME289 Exploring Topics in Mechanical Engineering (2 Credits)**
Introductory Design Topics in the Field of Mechanical Engineering.
**Repeatable to:** 4 credits if content differs.

**ENME299 Topics in Mechanical Engineering (1-3 Credits)**
Introductory topics in the field of mechanical engineering.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Repeatable to:** 6 credits if content differs.

**ENME331 Fluid Mechanics (3 Credits)**
Principles of fluid mechanics. Mass, momentum and energy conservation. Hydrostatics. Control volume analysis. Internal and external flow. Boundary layers. Modern measurement techniques. Computer analysis. Laboratory experiments.
**Prerequisite:** ENES232 and ENES221.
**Credit Only Granted for:** BIOE331, ENCE305, ENFP300, or ENME331.

**ENME332 Transfer Processes (3 Credits)**
The principles of heat transfer. Conduction in solids. Convection. Radiation. Modern measurement techniques. Computer analysis.
**Prerequisite:** ENME331.
**Credit Only Granted for:** ENME332 or ENFP312.

**ENME350 Electronics and Instrumentation I (3 Credits)**
Modern instrumentation. Basic circuit design, standard microelectronic circuits. Digital data acquisition and control. Signal conditioning. Instrumentation interfacing. Designing and testing of analog circuits. Laboratory experiments.
**Prerequisite:** PHYS271 and PHYS270.

**ENME351 Electronics and Instrumentation II (3 Credits)**
Continuation of ENME 350. Modern instrumentation. Basic circuit design, standard microelectronic circuits. Digital data acquisition and control. Signal conditioning. Instrumentation interfacing. Designing and testing of analog circuits. Laboratory experiments.
**Prerequisite:** PHYS271, ENME350, and PHYS270.

**ENME361 Vibration, Controls and Optimization I (3 Credits)**
Fundamentals of vibration, controls and optimization. Analysis and design in time, Laplace and frequency domains. Mathematical description of system response, system stability, control and optimization. Optimal design of mechanical systems.
**Prerequisite:** ENES220, ENES221, and MATH246; and (MATH206 or ENME202).
**Restriction:** Must be in Engineering: Mechanical program.

**ENME371 Product Engineering and Manufacturing (3 Credits)**
Business aspects of engineering product development. Relationship of design and manufacturing. Product specification. Statistical process control. Design team development. The development process.
**Prerequisite:** ENES221; and (ENME392 or STAT400).
**Restriction:** Must be in Engineering: Mechanical program.

**ENME382 Introduction to Materials Engineering (3 Credits)**
Structure of materials, chemical composition, phase transformations, corrosion and mechanical properties of metals, ceramics, polymers and related materials. Materials selection in engineering applications.
**Prerequisite:** ENES100; and permission of ENGR-Mechanical Engineering department.
**Corequisite:** MATH241.
**Recommended:** PHYS261 and PHYS260.
**Restriction:** Permission of ENGR-Mechanical Engineering department. Cross-listed with ENMA300.
**Credit Only Granted for:** ENMA300 or ENME382.

**ENME392 Statistical Methods for Product and Processes Development (3 Credits)**
Integrated statistical methodology for the improvement of products and processes in terms of performance, quality and cost. Designed experimentation. Statistical process control. Software application. Laboratory activities.
**Prerequisite:** MATH241.

**ENME400 Machine Design (3 Credits)**
Design of mechanical elements and planar machines. Failure theories. Design of pressure vessels, joints, rotating elements, and transmission elements. Kinematic structures, graphical, analytical, and numerical analysis and synthesis of linkages, gear trains, and flywheels are covered.
**Prerequisite:** Must have completed or be concurrently enrolled in ENME361.
**Restriction:** Permission of ENGR-Mechanical Engineering department.

**ENME401 Entrepreneurial Design Realization (3 Credits)**
The vision for this course, and an aspect that makes it unique, is to expose students to the opportunities and challenges of bringing a product design to reality (entrepreneurship). The emphasis is on environmentally and socially sustainable projects. The end-product of this course will be full-scale implementations or complete design "packages" that can be taken to potential stakeholders.
**Cross-listed with:** ENES401.
**Restriction:** Must have senior standing and permission of instructor.
**Credit Only Granted for:** ENME401, ENME489B or ENES401.
**Formerly:** ENME489B.

**ENME406 Roller Coaster Engineering (3 Credits)**
Engineering of roller coasters including: specifications, concept creation, structural design, car design, and safety. Course covers biomechanics and rider kinematics as well as manufacturing aspects.
**Prerequisite:** ENES220, ENES221, and ENME272. And ENME202; or MATH206.
**Corequisite:** ENME400.
**Restriction:** Permission of ENGR-Mechanical Engineering department.

**ENME407 Sustainability, Climate Change and Renewable Energy Systems (3 Credits)**
Countries around the world are developing innovative and sustainable solutions that not only help to protect the environment from the threats of global climate change, but that also can improve human health and quality of life. In this course students will explore solutions to climate change, as well as geothermal and hydroelectric energy systems and their applications.
**Prerequisite:** PHYS260; or permission of ENGR-Mechanical Engineering department.
**Restriction:** Students must have completed a minimum of 60 credits by the time they will enroll in this course.

**ENME408 Selected Topics in Engineering Design (3 Credits)**
Creativity and innovation in design. Generalized performance analysis, reliability and optimization as applied to the design of components and engineering systems. Use of computers in design of multivariable systems.
**Restriction:** Must be in Engineering: Mechanical program; and senior standing. Or permission of ENGR-Mechanical Engineering department.
**Repeatable to:** 6 credits if content differs.

**ENME410 Design Optimization (3 Credits)**
Introduction to the formal process of design optimization, including analytical and computational methods. Step by step design optimization techniques. Design optimization concepts, necessary and sufficient optimality conditions and solution techniques. Solution evaluation and tradeoff exploration.
**Prerequisite:** ENME271; or MATH206.
**Restriction:** Permission of ENGR-Mechanical Engineering department; and junior or senior standing.

**ENME413 Bio-Inspired Robotics (3 Credits)**
Fundamentals and applications of biologically inspired robots, traditional robots, and design and fabrication of biologically inspired robots.
**Prerequisite:** Must have completed or be concurrently enrolled in ENME351.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Credit Only Granted for:** ENME413 or ENME489L.
**Formerly:** ENME489L.

**ENME416 Additive Manufacturing (3 Credits)**
Develop a comprehensive understanding of fundamental additive manufacturing, 3D printing approaches, including: extrusion-based deposition, stereolithography, powder bed-based melting, and inkjet-based deposition. Cultivate a design for-additive manufacturing skillset for CAD and CAM methodologies to produce successful 3D prints. Fabricate 3D mechanical objects using a variety of 3D printing technologies on campus. Execute a design project that demonstrates how additive manufacturing technologies can overcome critical limitations of traditional manufacturing processes.
**Prerequisite:** ENME331. And ENME272; or ENME414.
**Restriction:** Permission of ENGR-Mechanical Engineering department.

**ENME417 Numerical Methods in Engineering (3 Credits)**
Covers the fundamental aspects of how to apply analytical mathematical concepts to discrete data. The course is aimed at graduate students and senior undergraduate students in any area of engineering, and treats the material in a general manner that is not specific to any application or field of specialization.
**Recommended:** Senior standing.
**Jointly offered with:** ENME745.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Credit Only Granted for:** ENME745, ENME808B, ENME417 or ENME489J.
**Formerly:** ENME489J.

**ENME420 Energy Audit for Decarbonization and Sustainability Enhancement (3 Credits)**
Provides students with fundamentals and applications of de-carbonization of building systems for energy sustainability through energy audit and efficiency measures, renewable energy, and electrification. Topics covered include societal and economic motivations for de-carbonization of buildings; building energy auditing and energy consumption analysis; lighting systems and controls; heating/cooling and ventilation systems; integrated building automation systems; fundamentals of renewable energy for building applications; fundamentals of building electrification and energy storage devices; emerging technologies for building energy sustainability.
**Prerequisite:** ENES232 .
**Corequisite:** ENME332.
**Restriction:** Permission of the department.
**Credit Only Granted for:** ENME420 or ENME489I.
**Formerly:** ENME489I.

**ENME421 Engineering Design Ideation (3 Credits)**
Engineering Design Methods is a technical elective for engineering students who wish to improve their ability to produce design ideas (i.e., the ideation process) for further development into conceptual ideas. Ideation is the creative, idea generation activity that happens at the beginning of the conceptual design process. Ideation methods are often built around creativity improving strategies and are often designed for individual use prior to presenting the results in a team setting.
**Prerequisite:** Must have completed or be concurrently enrolled in ENME371.
**Restriction:** Junior standing or higher.
**Additional Information:** Ideally, this course should be taken prior to capstone design.

**ENME422 Indoor Environment and Mechanical Systems (3 Credits)**
Fundamentals of indoor air quality and its measurements. Exploration of air cleaning technologies for gaseous, particulate and infectious agent contaminants. Simulations of air flow and contaminants with multi-zone models to allow testing of both contaminant dispersion in buildings and effectiveness of air cleaning technologies.
**Prerequisite:** ENES232 and ENME332.
**Jointly offered with:** ENME753.
**Credit Only Granted for:** ENME422 or ENME753.

**ENME423 Modern Climate Control and Building Energy Design/Analysis (3 Credits)**
Fundamentals and design calculations of heat and moisture transfer in buildings; evaluation of cooling, heating and power requirements of buildings; building energy consumption simulations, use of alternative energy and energy conservation measures in buildings; fundamentals of fans/pumps and air/water distribution in buildings; introduction to refrigeration and energy systems for data centers and other mission-critical facilities.
**Prerequisite:** ENES232.
**Corequisite:** ENME332.
**Restriction:** Permission of ENGR-Mechanical Engineering department.

**ENME424 Urban Microclimate and Energy (3 Credits)**
Urban microclimate from the perspective of transient heat and mass transfer using building energy simulations for building clusters as well as LEED building certification criteria. The focus is on understanding building energy consumption and environmental impacts from the individual building scale to a neighborhood scale.
**Prerequisite:** Must have completed or be concurrently enrolled in ENME332.
**Recommended:** ENME423.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Credit Only Granted for:** ENME424 or ENME808I.

**ENME425 Energy Conversion Systems for Sustianability (3 Credits)**
Focus on energy sustainability with view on changing global energy availability and use. Addresses the objective of greatly reducing our dependence on the finite amounts of fossil energy sources available for our quest to achieve environmentally benign sustainable energy for green environment. The emphasis will be on sustainability issues, discussion on supply, demand and storage, energy transmission, global warming and carbon management, biomass-resources, uses and production of biofuels, national energy policy discussion, carbon emission, energy security and economics to ensure future energy needs can be met without compromising the ability of future generation to meet their own needs with due considerations to increase in global temperatures.
**Prerequisite:** ENES232.
**Restriction:** Permission of the Mechanical Engineering Department.
**Credit Only Granted for:** ENME489X or ENME425.
**Formerly:** ENME489X.

**ENME426 Production Management (3 Credits)**
The basic concepts and models needed to understand and design manufacturing systems, including the history of manufacturing, performance measures, queuing systems, variability, production planning and scheduling, lean manufacturing, and pull production control.
**Credit Only Granted for:** BMGT385 or ENME426.

**ENME427 CSI Mechanical: Finding Reasons for Compromised Structural Integity (3 Credits)**
Understanding the causes of product failures including the political, societal, economic, environmental, and ethical impact of these failures, and the strategies to avoid, postpone, or mitigate them. Students will be encouraged to combine concepts from engineering, natural sciences, social sciences, and the humanities to address these complex issues. Basics of failure analysis, forensics, and reliability engineering and the scientific fundamentals underlying the most common types of failure. Issues of legal liability. Methods for monitoring the existing condition of a structure.
**Prerequisite:** ENES220 and ENME382.
**Restriction:** Permission of ENGR-Mechanical Engineering department.

**ENME430 Fundamentals of Nuclear Reactor Engineering (3 Credits)**
Fundamental aspects of nuclear physics and nuclear engineering, including nuclear interactions; various types of radiation and their effects on materials and humans; and basic reactor physics topics, including simplified theory of reactor critically.
**Prerequisite:** MATH246.
**Restriction:** Permission of ENGR-Mechanical Engineering department.

**ENME431 Nuclear Reactor Systems and Safety (3 Credits)**
Engineering, material and thermal aspects of light water reactors, fast reactors, high temperature gas reactors, heavy water moderated reactors, breeder reactors, advanced reactors including GEN IV designs. Evolution of light water reactor safety and regulation in the US that has culminated in the current body of regulations.
**Prerequisite:** MATH246.
**Recommended:** ENME430.
**Restriction:** Permission of ENGR-Mechanical Engineering department.

**ENME432 Reactor and Radiation Measurements Laboratory (3 Credits)**
Basics concepts of nuclear radiation and radiation detectors including types of radiation, radioactive decay, and interactions of radiation with matter.
**Prerequisite:** ENME430 and MATH246.
**Restriction:** Permission of ENGR-Mechanical Engineering department.

**ENME433 Nuclear Reactor Design (3 Credits)**
Principles of nuclear reactor engineering including nuclear reactor system design, materials, thermal-hydraulics, shielding, mechanical design, and safety analysis.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Credit Only Granted for:** ENME433 or ENME489T.
**Formerly:** ENME489T.

**ENME434 Engineering Quantum Systems and Sensors (3 Credits)**
Designed for students interested in learning quantum mechanics from a technological perspective, illustrated through specific examples from quantum engineering at the nanoscale and from discrete quantum systems. The focus is not on textbook examples such as hydrogen atom solutions and angular momentum algebra. Instead, focus areas would be quantum sensors and systems, description and control of quantum noise, which should elicit particular appeal across many areas of engineering and physical sciences. The course will prepare students for emerging quantum technologies besides computing and cryptography that are part of the Quantum 2.0 revolution.
**Prerequisite:** PHYS270 and MATH141.
**Recommended:** Any MATH 240, MATH 461, MATH341, or ENEE290 or equivalent courses covering linear algebra, eigenvalues, and eigenvectors.
**Jointly offered with:** ENME692.
**Restriction:** Permission of Mechanical Engineering department.
**Credit Only Granted for:** ENME434 or ENME692.

**ENME435 Remote Sensing Instrumentation (3 Credits)**
Explores the fundamentals of remote sensing techniques including light detection and ranging (lidar), radar, and computer vision in the context of emerging technologies such as autonomous navigation, terrain modeling, and embedded smart devices.
**Prerequisite:** ENME351.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Credit Only Granted for:** ENME435 or ENME489Y.
**Formerly:** ENME489Y.

**ENME436 Renewable Energy (3 Credits)**
Fundamentals, design/analysis tools, and state of the art renewable energy technologies. Energy resources and global perspectives of current and future energy demand/consumption trends, followed by prime renewable energy technologies, including wind, solar, hydro, geothermal, and ocean thermal energy conversion. Economics of renewable energy, energy conservation opportunities, CO2 capture and storage, and thermal energy storage.
**Prerequisite:** ENME331.
**Restriction:** Must be in a major within the ENGR-Mechanical Engineering department.
**Credit Only Granted for:** ENME489K or ENME436.
**Formerly:** ENME489K.

**ENME440 Applied Machine Learning for Engineering and Design (3 Credits)**
Learn how to apply techniques from Artificial Intelligence and Machine Learning to solve engineering problems and design new products or systems. Design and build a personal or research project that demonstrates how computational learning algorithms can solve difficult tasks in areas you are interested in. Master how to interpret and transfer state-of-the-art techniques from computer science to practical engineering situations and make smart implementation decisions.
**Prerequisite:** ENME392; or permission of instructor.
**Jointly offered with:** ENME743.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Credit Only Granted for:** ENME440 or ENME743.

**ENME441 Mechatronics and the Internet of Things (3 Credits)**
Mechatronics and the Internet of Things combines sensors, actuators, computation, and communication to realize integrated objects capable of robust Internet-based interfacing. Students will gain experience with circuit development, mechatronic systems, MicroPython coding, and Internet communication protocols using the ESP32 microcontroller platform. The project-focused course combines lectures and hands-on labs to drive learning at the convergence of mechanics, electronics, and software domains for IoT smart object development.
**Prerequisite:** ENME351.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Credit Only Granted for:** ENME489B or ENME441.
**Formerly:** ENME489B.

**ENME442 Information Security (3 Credits)**
The materials presented are divided into three major components: overview, detailed concepts and implementation techniques. The topics to be covered are: general security concerns and concepts from both a technical and management point of view, principles of security, architectures, access control and multi-level security, trojan horses, covert channels, trap doors, hardware security mechanism, security models, security kernels, formal specifications and verification, networks and distribution systems and risk analysis.
**Restriction:** Must have Senior standing in engineering; and permission of ENGR-Mechanical Engineering department. Jointly offered with ENRE684 .
**Credit Only Granted for:** ENRE648J, ENME442, ENRE684, or ENPM808E.

**ENME444 Assistive Robotics (3 Credits)**
Fundamentals of assistive robots used in a wide varietyof ways to help humans with disabilities. Three application areas will be covered: (1) Rehabilitation robotics to recover motor function from neurologic injuries such as stroke, (2) Prosthetics to enable mobility function in amputees, and (3) Social robotics for cognitive impairment and developmental disorders such as autism. Theory behind different control systems employed by assistive robotics, as well as the mechanical design, sensors & actuators, and user interfaces behind representative robots in the respective areas. Guidelines for designing assistive robots. Ethical and regulatory considerations in the design of assistive robots.
**Prerequisite:** ENME351; and must have completed or be concurrently enrolled in ENME462.
**Restriction:** Permission of ENGR-Mechanical Engineering department.

**ENME445 Design for Reliability (3 Credits)**
Failure prevention, accident prevention, design requirements analysis, designing right the first time, high system reliability, software reliability, manufacturing defect prevention, life cycle costs reduction, design reviews, managing the design for reliability, design trustworthiness, product durability, and writing good specifications are covered.
**Restriction:** Junior standing or higher.

**ENME446 Medical Robotics (3 Credits)**
The fundamentals of robot design, control and different areas of research regarding development are explored. Student will engage in a course project where they will learn to develop, build, and control a medical robot. Surgical robotics development and modeling of robotic systems, safety in medical robotics, haptics, ergonomics and surgery. Fundamentals of robot design and control. Kinematics. This proposal was approved through the Testudo Curriculum Management system.
**Prerequisite:** Must have completed or be concurrently enrolled in ENME361.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Credit Only Granted for:** ENME489C, ENME808M or ENME446.
**Formerly:** ENME489C.

**ENME454 Vehicle Dynamics (3 Credits)**
The fundamentals of passenger vehicle and light truck design and vehicle dynamics are covered. The engineering principles associated with acceleration, braking, handling, ride quality, aerodynamics, and tire mechanics are discussed, as well as suspension and steering design.
**Corequisite:** ENME361.
**Restriction:** Permission of ENGR-Mechanical Engineering department.

**ENME461 Control Systems Laboratory (3 Credits)**
Students will design, implement, and test controllers for a variety of systems. This will enhance their understanding of feedback control familiarize them with the characteristics and limitations of real control devices. Students will also complete a small project. This will entail writing a proposal, purchasing parts for their controller, building the system, testing it, and writing a final report describing what they have done.
**Prerequisite:** ENME351 and ENME361.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Credit Only Granted for:** ENEE461 or ENME461.

**ENME462 Vibrations, Controls, and Optimization II (3 Credits)**
Continuation of ENME361. Fundamentals of vibration, controls, and optimization. Analysis and design in time, Laplace and frequency domains. Mathematical descriptions of system response, system stability, control and optimization. Optimal design of mechanical systems.
**Prerequisite:** ENME361.
**Restriction:** Permission of the Mechanical Engineering Department.

**ENME464 Cost Analysis for Engineers (3 Credits)**
An introduction to the financial and cost analysis aspects of product engineering. Introduces key elements of traditional engineering economics including interest, present worth, depreciation, taxes, inflation, financial statement analysis, and return on investment. Provides an introduction to cost modeling as it applies to product manufacturing and support. Cost modeling topics will include: manufacturing cost analysis, life-cycle cost modeling (reliability and warranty), and cost of ownership.
**Prerequisite:** ENME392; or students who have taken courses with comparable content may contact the department.
**Restriction:** Permission of ENGR-Mechanical Engineering department.

**ENME465 Probability-Based Design (3 Credits)**
Review of probabilistic distributions, introduction to pseudo-random number generation, and algorithms to produce probability distributions using Monte Carlo simulation via Matlab and other approaches to best design probabilistic engineering problems.
**Prerequisite:** MATH206 and ENME392.
**Restriction:** Permission of ENGR-Mechanical Engineering department.

**ENME466 Lean Six Sigma (3 Credits)**
This course intends to provide in-depth understanding of Lean Six Sigma and its Define - Mearsure - Analyze - Improve - Control (DMAIC) Breakthrough Improvement Strategy. The emphasis is placed on the DMAIC process which is reinforced via application of semester long corporate projects and case study analysis.
**Corequisite:** ENME392; or students who have taken courses with comparable content may contact the department.
**Restriction:** Permission of ENGR-Mechanical Engineering department.

**ENME467 Engineering for Social Change (3 Credits)**
Critical analysis of issues at the intersection of engineering, philanthropy and social change. How engineering design, products and processes have created social change in the past and will do so in the future through both intended and unintended consequences. Topics covered include energy, sustainability and climate change, autonomy, the digital future, low cost engineering, manufacturing, philanthropy, ethics and the impact of electronics on society, among others. Faculty and external experts will engage with students on these topics. Students will broadly engage with organizations involved in using technology for positive social impact.
**Cross-listed with:** ENES467.
**Restriction:** Must not be in Engineering: Mechanical program; and junior standing or higher; and must be in a major in ENGR-A. James Clark School of Engineering.
**Credit Only Granted for:** ENES467 or ENME467.

**ENME470 Finite Element Analysis (3 Credits)**
Basic concepts of the theory of the finite element method. Applications in solid mechanics and heat transfer.
**Restriction:** Senior standing; and permission of ENGR-Mechanical Engineering department.

**ENME472 Integrated Product and Process Development (3 Credits)**
Integration of product development with the development process. Design strategies. Product architecture. Design for manufacturing. Selection of materials. Design for assembly.
**Prerequisite:** ENME331, ENME361, ENME351, and ENME371; and must have completed or be concurrently enrolled in ENME332.
**Restriction:** Permission of the Department of Mechanical Engineering.

**ENME473 Mechanical Design of Electronic Systems (3 Credits)**
Design considerations in the packaging of electronic systems. Production of circuit boards and design of electronic assemblies. Vibration, shock, fatigue and thermal considerations.

**ENME476 Mircoelectromechanical Systems (MEMS) I (3 Credits)**
Fundamentals of microelectromechanical systems (MEMS). Introduction to transducers and markets. MEMS fabrication processes and materials, including bulk micromachining, wet etching, dry etching, surface micromachining, sacrificial layers, film deposition, bonding, and non-traditional micromachining. Introduction to the relevant solid state physics, including crystal lattices, band structure, semiconductors, and doping. The laboratory covers safety, photolithography, profilometry, wet etching.
**Restriction:** Senior standing.
**Credit Only Granted for:** ENME476 or ENME489F.
**Formerly:** ENME489F.

**ENME477 Microelectromechanical Systems (MEMS) II (3 Credits)**
Fabrication of devices designed in MEMS I, including everything from mask printing through training on state-of-the-art fabrication equipment through device testing. In-depth understanding of MEMS devices and technologies, such as mechanical and electromagnetic transducers, microfluidics, and chemical sensors.
**Prerequisite:** ENME476.

**ENME479 Selected Topics in Mechanical Engineering (1-3 Credits)**
Covers current topics in mechanical engineering and related fields.
**Restriction:** Permission of the Department of Mechanical Engineering.
**Repeatable to:** 6 credits if content differs.

**ENME480 Introduction to Robotics (3 Credits)**
An introductory course in robotics that will educate students in the elementary concepts of robotics. The course will encompass both theory and experiments.
**Prerequisite:** MATH246 or ENES221; and (CMSC131, ENME202, ENAE202 or ENEE150).
**Restriction:** Must be in the Robotics and Autonomous Systems minor; or Permission of ENGR-Mechanical Engineering department.

**ENME483 Physics of Turbulent Flow (3 Credits)**
Specific problems of turbulent flow including automobile and truck aerodynamics and canonical flows including pipes, jets and boundary layers that are measured and simulated to gain basic understanding of turbulence. A goal of the course is to impart the necessary background for students to be able to critically assess and most effectively employ the turbulent flow prediction codes (e.g. Fluent) that are a mainstay of how turbulence is analyzed in modern industries.
**Prerequisite:** ENME331.
**Restriction:** Permission of ENGR-Mechanical Engineering department. Jointly offered with ENME656. Credit only gran ted for: ENME483 or ENME656.

**ENME484 Analysis of Turbulent Flow (3 Credits)**
Relentless growth in the speed and size of supercomputers has encouraged the ever expanding use of numerical simulation in the practice of fluids engineering. For the flow past ground vehicles, in the urban grid, re-entering rockets, helicopters landing on ships at sea and countless other examples, the flow is turbulent, and simulation is becoming or will one day become the methodology of choice in analyzing and designing such technologies. The goal of this course is to give an introduction to the analysis of turbulent flow via simulation and the modeling that is used in its development. Among the questions to be considered: What can one hope to learn from flow simulation? What are the strengths of the approach and what obstacles inhibit its application? What kind of physical considerations are required in setting up simulations? How does one analyze the results of a simulation?
**Prerequisite:** ENME331.
**Jointly offered with:** ENME657.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Credit Only Granted for:** ENME484 or ENME657.

**ENME486 Computational Modeling, Simulation, and Interactive Visualization (3 Credits)**
Creation of interactive graphic displays from the numerical simulation of mechanical engineering models. Brief description of each model provided, along with varied parameters to explore models' characteristics. Conclusions drawn from use of each interactive graphic. Mathematica language introduced and interwoven with the numerical simulation of the models, which will include: robotics and mechanisms, static response of beams, control systems, measurement systems, fluid flow, vibrations, geometric modeling, finite element analysis, and nonlinear phenomena.
**Restriction:** Senior standing; and permission of ENGR-Mechanical Engineering department.

**ENME488 Special Problems (3 Credits)**
Advanced problems in mechanical engineering with special emphasis on mathematical and experimental methods.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Repeatable to:** 6 credits if content differs.

**ENME489 Special Topics in Mechanical Engineering (3 Credits)**
Selected topics of current importance in mechanical engineering.
**Restriction:** Permission of ENGR-Mechanical Engineering department.
**Repeatable to:** 6 credits.

# ENMT - Mechatronics Engineering

**ENMT301 Structural Dynamics (3 Credits)**
An introduction to modeling and structural analysis of mechatronic structures subject to dynamic loading. It deals with preliminary analysis of primary structure for mechatronics components, including such topics as load determination, torsion, bending, shear, buckling, fatigue and thermal analysis of thin-walled structures. Emphasis is placed on solving problems by finding the differential equations of motion of model systems and solving these equations analytically or numerically in Matlab.
**Prerequisite:** Minimum grade of C- in ENES220.
**Restriction:** Must be in the Mechatronics Engineering program.

**ENMT322 Discrete Signal Analysis (3 Credits)**
Analysis techniques for simulating resonances and impedances in systems that couple physical interactions electrical, mechanical, magnetic and piezoelectric domains. Analysis applied to modeling the electro-magneto-mechano-acoustic domain interactions in traditional loudspeaker designs, and can be extended to the design of sensors, energy harvesters and actuators.
**Prerequisite:** Minimum grade of C- in MATH246.
**Restriction:** Must be in the Mechatronics Engineering program.

**ENMT361 Mechatronics and Controls I (3 Credits)**
Basic instrumentation electronics including DC electronics, AC electronics, semiconductors, electro-optics and digital electronics. Sensing devices used to carry out experiments including meteorology, machine tool measurements, bridge circuits, optical devices, and introduction to computer based data acquisition.
**Prerequisite:** Minimum grade of C- in PHYS270 and PHYS271.
**Restriction:** Must be in the Mechatronics Engineering program.

**ENMT380 Intro to Robotics (3 Credits)**
Introduces basic concepts for deployment of robotic systems in mechatronics. This course will introduce students to the elementary concepts in robotics, with emphasis on robotic manipulators. It will encompass both theory and laboratory components with programming on real manipulators.
**Prerequisite:** Minimum grade of C- in ENME202 or ENAE202; and minimum grade of C- in ENES221 and MATH246.
**Restriction:** Must be in the Mechatronics Engineering program.
**Credit Only Granted for:** ENMT380 or ENME480.

# ENNU - Engineering, Nuclear

**ENNU386 Experiential Learning (3-6 Credits)**
**Restriction:** Must have Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor; and junior standing or higher.

**ENNU398 Honors Research Project (1-3 Credits)**

**ENNU468 Research (2-3 Credits)**
Investigation of a research project under the direction of one of the staff members. Comprehensive reports are required.
**Restriction:** Permission of instructor; and permission of ENGR-Materials Science & Engineering department.
**Repeatable to:** 6 credits.

**ENNU489 Special Topics in Nuclear Engineering (3 Credits)**
Selected topics of current importance in nuclear engineering.
**Restriction:** Permission of ENGR-Materials Science & Engineering department.
**Repeatable to:** 6 credits if content differs.

# ENRE - Reliability Engineering

**ENRE447 Fundamentals of Reliability Engineering (3 Credits)**
This course provides a general survey of the techniques of reliability engineering with a focus on quantitative methods. Topics covered include: failure modes and effects analysis, mathematical definition of reliability, probabilistic models to represent failure phenomena, statistical life models for non-repairable components, reliability data analysis, and system reliability models including fault trees, event trees. Students will learn how to apply these techniques to problems related to engineering systems, with example cases for process plants, energy systems and infrastructure.
**Prerequisite:** MATH141.

**ENRE489 Special Topics in Reliability Engineering (3 Credits)**
Selected topics of current importance in reliability engineering.
**Prerequisite:** Permission of ENGR-Mechanical Engineering department.
**Repeatable to:** 6 credits if content differs.

# ENSP - Environmental Science and Policy

**ENSP101 Introduction to Environmental Science (3 Credits)**
One of two required courses that introduce students to the topics studied and methods employed in environmental science and policy. Emphasis on scientific ways of knowing; the systems, cycles, flows, and interfaces that characterize the atmosphere, lithosphere, hydrosphere, and biosphere; the analysis of human impacts on these systems; and the nature of scientific uncertainty and methods of quantifying environmental processes.

**ENSP102 Introduction to Environmental Policy (3 Credits)**
Second of two courses that introduce students to the topics studied and methods employed in environmental science and policy. Emphasis on the process of formulating, implementing, and evaluating policy responses to environmental problems, with particular attention to policy controversies related to scientific uncertainty, risk assessment, the valuation of nature, and distributional equity. May be taken before or after ENSP101.
**Additional Information:** May be taken before or after ENSP101.

**ENSP250 Lawns in the Landscape: Environmental Hero or Villain? (3 Credits)**
Examination of the lawn as an element in the anthropogenic landscape and its influence on global warming, regional air and water quality, ecological diversity, mammalian pesticide exposure and consumptive water use. Demographic and socioeconomic factors are examined in the context of being predictors of landscape aesthetic desires and lawn management behaviors. Policies that incentivize lawn alternatives or changes in lawn management behavior are discussed.Cross-listed with PLSC250.
**Credit Only Granted for:** ENSP250 or PLSC250.

**ENSP305 Applied Spatial Analysis in Environmental Science and Policy (3 Credits)**
Intended for students interested in pursuing career or graduate research opportunities that will include identifying/querying/processing environmental datasets, detailed spatial analysis of environmental data, and applications of predictive environmental modeling. Students will learn necessary skills to analyze and process environmental data through hands-on training in commonly used software and a series of topical case studies. Data analysis and data processing will be taught using publicly available real-world environmental data sets.
**Prerequisite:** GEOG373; or permission of Environmental Science and Policy Program.
**Recommended:** ENSP101 and ENSP102.
**Restriction:** Must have earned a minimum of 60 credits; and permission of Environmental Science and Policy program.

**ENSP306 Fundamentals of Qualitative Research Methods for Environmental Studies (3 Credits)**
An introduction to research design and methods, with an in-depth focus on qualitative research methods and application to environmental studies. Topics include: writing an appropriate research question, identifying relevant methods, submitting a proposal to the Institutional Review Board, choosing appropriate sampling approaches, conducting interviews, focus groups, ethnographies, analyzing textual data, and presenting qualitative results.
**Recommended:** ENSP101 and ENSP102.
**Restriction:** Junior standing or higher; and must be a major in the Environmental Science and Policy program; or permission of Environmental Science and Policy program.

**ENSP330 Introduction to Environmental Law (3 Credits)**
An overview of environmental law, from its common law roots to its role in the modern regulatory state, including an examination of major federal environment statutes and the policy debates inherent in them. Other areas covered include civil and criminal enforcement, standing to sue, land use control, and regulatory takings.
**Recommended:** ENSP101 and ENSP102.
**Restriction:** Junior standing or higher. And must be a major in the Environmental Science and Policy program; or permission of Environmental Science and Policy program.

**ENSP340 Water: Science, Ethics, and Policy (3 Credits)**
Exploration of the science, policy, and ethical aspects of water resource protection and management. Focus on water pollution, water availability, ecosystems, and sustainability
**Recommended:** ENSP101 and ENSP102.
**Restriction:** Must have earned a minimum of 60 credits. And must be a major in the Environmental Science and Policy program; or permission of Environmental Science and Policy program.

**ENSP342 Environmental Threats to Oceans and Coasts: Towards an Integrated Policy Response (3 Credits)**
An interdisciplinary study of the challenges of maintaining the health and vitality of oceans and coasts in the face of climate change, extreme weather, and other threats including pollution, and oil and gas development. Exploration of four broad themes: resource management, conservation and stewardship, pollution, and coastal zone management. Also, an analysis of current efforts to integrate these themes through ecosystem-based management; marine spatial planning; and related policy responses.
**Recommended:** ENSP101 and ENSP102.
**Restriction:** Must have earned a minimum of 60 credits. And must be a major in the Environmental Science and Policy program; or permission of Environmental Science and Policy program.

**ENSP350 Energy Resources: Science and Policy in the 21st Century (3 Credits)**
Energy resource production and consumption, including historical context, current trends in the U.S. and globally, and social and environmental implications. Includes fuel-source formation, history of use, modern trends in consumption, production, pricing and trade, reserves and resources, environmental and social impacts, future outlook and potential new technologies related to energy efficiency and conservation.
**Prerequisite:** ENSP101 and ENSP102.
**Restriction:** Must have earned a minimum of 60 credits; and permission of AGNR-Dean-Environmental Science & Policy Program.
**Credit Only Granted for:** ENST405, ENSP350, ENST605, or MEES698Z.

**ENSP360 Every Drop Counts: Water, Food and Global Public Health (3 Credits)**
In-depth interdisciplinary study of the public health issues related to water use for global food production. Topics will include accessibility and availability of safe water for agriculture worldwide, potential microbiological and chemical hazards in agricultural water, alternative water sources such as reclaimed wastewater and return flows, food safety approaches to managing agricultural water, and agricultural influences on surface and groundwater quality. Political, social, and economic factors relating to agricultural water will be addressed, with special focus on regions that are leaders in innovative water management and regions where access to clean water for agriculture is a major challenge.
**Prerequisite:** ENSP101 or MIEH300; or permission of department.
**Cross-listed with:** MIEH333.
**Credit Only Granted for:** MIEH333 or ENSP360.

**ENSP370 Principles of Environmental Justice: Theory and Practice (3 Credits)**
Explores the issue of environmental justice from the social science, policy, and legal perspectives. The course will begin with a theoretical foundation of environmental justice, and the historical, social and economic roots of environmental injustices and environmental racism. We will explore the different contexts within which environmental injustice manifests itself including domestic and international examples such as injustices in the food system, climate justice, environmental privilege, and urban environmental justice and pollution. We will study the ways in which people and communities have combated environmental injustices by looking at the history of the environmental justice movement, which was created to address the increasingly disproportionate impacts of environmental harms on low income populations and communities of color.
**Recommended:** ENSP101 and ENSP102.
**Restriction:** Junior standing or higher. Must be a major in the Environmental Science and Policy program; permission of Environmental Science and Policy program.

**ENSP386 Internship (3-6 Credits)**
**Restriction:** Must have internship proposal approved by the concentration advisor, the director of ENSP and the student's internship sponsor.

**ENSP399 Special Topics in Environmental Science and Policy (1-3 Credits)**
A substantive and specialized examination of contemporary issues in environmental science or policy.
**Restriction:** Must be in Environmental Science and Policy program; or permission of AGNR-Dean-Environmental Science & Policy Program.
**Repeatable to:** 12 credits if content differs.

**ENSP400 Capstone in Environmental Science and Policy (3 Credits)**
Integration of physical, biological, and social sciences with applications to environmental science and policy. Problem-solving and multi-disciplinary case study evaluations pertinent to contemporary and future issues related to the environment.
**Prerequisite:** ENSP101; and ENSP102.
**Restriction:** Must be in Environmental Science and Policy program; and senior standing; and permission of the Environmental Science and Policy Program.

**ENSP489 Special Topics in Environmental Science and Policy (1-3 Credits)**
A lecture and or laboratory series organized to study a selected phase of Environmental Science and Policy not covered by existing courses. Credit according to time scheduled and organization of the course.
**Repeatable to:** 6 credits if content differs.

**ENSP499 Honors Thesis Research (1-6 Credits)**
Individual research, thesis, and oral defense. The research project will be conducted under the supervision of a faculty member.
**Restriction:** Must be in the ENSP Honors program; and permission of AGNR-Dean-Environmental Science & Policy Program.
**Repeatable to:** 6 credits.

# ENST - Environmental Science and Technology

**ENST100 International Crop Production-Issues and Challenges in the 21st Century (3 Credits)**
Examines the role of crop production in elevating humans out of poverty in developing countries. It will introduce students to the basic principles of plant and soil science underlying the international production of food crops and world food security. The role of multinational agencies such as the World Bank in the promotion of sustainable crop production using environmentally-sound technologies will also be discussed.

**ENST101 Ecological Discovery and Natural Solutions (1 Credit)**
The UMD Environmental Science and Technology (ENST) Department seeks to develop and apply scientific tools and processes to advance solutions to some of society's greatest environmental challenges. This seminar provides a unique and exciting opportunity to learn directly from faculty and researchers in the Department about what they study, teach, and share with society. Students will learn about the wide variety of research being conducted in the Department and how it relates to potential solutions to current environmental challenges. The course will cover research in the following areas: urban green spaces, aquaponics, bioenergy, wildlife management, aquatic toxicology, urban green spaces, wetland restoration, water resources, ecosystem health, soil chemistry, and more. It is anticipated that the course will include short visits to ENST laboratories and facilities. The course will also include information about academic, internship, and career opportunities related to ENST.
**Credit Only Granted for:** ENST499K or ENST101.
**Formerly:** ENST499K.

**ENST200 Fundamentals of Soil Science (4 Credits)**
Study and management of soils as natural bodies, media for plant growth, and ecosystem components. Morphology, composition, formation, and conservation of soils. Chemical, biological, and physical properties are discussed in relation to the production of plants, the functioning of hydrologic and nutrient cycles, the protection of environmental quality, and engineering uses of soils.
**Corequisite:** CHEM131 and CHEM132; or permission of AGNR-Environmental Science & Technology department.
**Credit Only Granted for:** ENST200 or NRSC200.
**Formerly:** NRSC200.

**ENST214 Introduction to Natural Resources Management (3 Credits)**
Lectures, discussion, and readings in social, biological, and human dimension issues facing natural resource managers in the United States. Coverage will include history and philosophical discussions of fishery, wildlife, and forestry sciences; conservation and management; principles of community, habitat, and animal ecology and management; and interrelations of wildlife, fish, and forestry.
**Prerequisite:** BSCI160 and BSCI161; or permission of instructor.
**Restriction:** Must be in the ENST Natural Resources Management or ENSP Wildlife Ecology & Management programs; and must have completed less than 90 credits; or permission of instructor.

**ENST215 Bats in Society: Human-Wildlife Relationships, Conflicts, & Solutions (3 Credits)**
How might an understanding of human-wildlife conflicts shape our approach to disease, ecology, and conservation? Should we care that we are losing wildlife, like bats? Across the globe, human societies have significantly harmed bat populations both intentionally and unintentionally. This course will delve into different bat population crisis causes as well as current and potential solutions, while addressing complex human-wildlife conflicts that need to be considered while solving them. During the course, students will get hands-on experience using highly sophisticated bat acoustic technology to identify bats to species-level. Lecture and discussion sections will focus on bat ecology, management techniques, newest bat identification techniques, data interpretation, and scientific presentation skills.
**Additional Information:** Students should expect to spend 1-3 hours across multiple nights deploying bat detectors (which will be provided by the instructor) at a location of their choosing. Safety protocols will be discussed and implemented.

**ENST233 Introduction to Environmental Health (4 Credits)**
Examines how humans are affected by the quality of our air, water, soil and food supply as well as how human activities alter these survival necessities. Students will learn how the evolution and prosperity of human populations have resulted in degradation of our environment and the impact of environmental degradation on the health of people. The implications of individual and collective choices for sustainable food production, population management, and resource utilization will be explored.

**ENST281 Computer Aided Design in Ecology (2 Credits)**
Basics of Computer Aided Drawing (CAD) applied to design of constructed ecosystems. Use of campus stormwater wetland as case study.

**ENST282 Ecological Innovation and Entrepreneurship (3 Credits)**
Ecotechnology innovation is taught with design thinking, which uses an iterative cycle of developing customer empathy, learning ecological technology, appreciating environmental stewardship, brainstorming, rapid prototyping, user experience, testing and redesign. Environment entrepreneurship is based on the Lean Startup process, which uses customer discovery, encourages quick product development, reduces start-up costs, tests ideas quickly, and employs designed experiments. A multidisciplinary academic setting embraces designing, building, testing and marketing novel technologies that enhance the environmental needs of humans. Students will learn in an active environment that requires working creatively, collaboratively, diligently, and precisely to create a business model and tangible prototype for a new commercial product.

**ENST301 Field Soil Morphology I (1 Credit)**
This is a field-oriented course that introduces students to the techniques used to (1) describe soil morphology, and site and profile characteristics, (2) make land use interpretations based on soil characteristics, and (3) classify soils. This class is designed to prepare students for the Regional Collegiate Soil Judging Contest and for students to gain experience in the description and interpretation of soils in the field.
**Restriction:** Permission of AGNR-Environmental Science & Technology department.
**Formerly:** ENST308.

**ENST302 Field Soil Morphology II (1 Credit)**
This is the second field-oriented course in a three course sequence that provides intermediate training for students in the techniques used to (1) describe soil morphology, and site and profile characteristics, (2) make land use interpretations based on soil characteristics, and (3) classify soils. This class is designed to prepare students for the Regional Collegiate Soil Judging Contest and for students to gain experience in the description and interpretation of soils in the field.
**Prerequisite:** ENST301.
**Restriction:** Permission of AGNR-Environmental Science & Technology department.

**ENST303 Field Soil Morphology III (1 Credit)**
This is the third field-oriented course in a three course sequence that provides intermediate training for students in the techniques used to (1) describe soil morphology, and site and profile characteristics, (2) make land use interpretations based on soil characteristics, and (3) classify soils. This class is designed to prepare students for the Regional Collegiate Soil Judging Contest and for students to gain experience in the description and interpretation of soils in the field.
**Prerequisite:** ENST302.
**Restriction:** Permission of AGNR-Environmental Science & Technology department.

**ENST309 Advanced Field Soil Morphology (1 Credit)**
This is a field-oriented course that provides advanced training for students in the techniques used to (1) describe soil morphology, and site and profile characteristics, (2) make land use interpretations based on soil characteristics, and (3) classify soils. This class is designed to prepare students for the National Collegiate Soil Judging Contest and for students to gain experience in the description and interpretation of soils in the field. Students will be exposed to a variety of soil landscapes and geology from outside of the northeastern U.S.
**Prerequisite:** ENST301.
**Restriction:** Permission of AGNR-Environmental Science & Technology department.
**Repeatable to:** 3 credits if content differs.

**ENST333 Ecosystem Health and Protection (3 Credits)**
Discussion of the philosophies, principles, and practices for assessing ecosystem health with emphasis on an ecosystem perspective rather than a human health perspective. Degradation associated with human activities will be emphasized. Topics will range from local to regional to global issues, including a discussion on global warming and its possible impacts on ecosystems. Concepts will be clarified using case histories from the Chesapeake Bay watershed.
**Prerequisite:** ENST233 or permission of instructor.

**ENST334 Environmental Toxicology (3 Credits)**
Concepts and case histories in ecotoxicology. Emphasis on origin and variety of environmental pollutants, routes of biological exposure, modes of toxicological action and effects on individual organisms, populations and ecosystems. Ecotoxicological issues in the Chesapeake Bay will be used as examples.
**Prerequisite:** CHEM131, CHEM132, and BSCI207; or permission of AGNR-Environmental Science & Technology department.

**ENST360 Ecosystem Ecology (4 Credits)**
The study of ecology has a long and interesting history, from early society's efforts to understand and alter their environment as a matter of survival to the challenges the modern world is facing that are global in scale. Through the course text, distributed supplemental chapter readings and an understanding of the scientific literature, this course will cover the essential concepts and principles of ecosystem ecology as well as its history and past and present controversies. Several of the basic methods and tools of field research and the applied management of ecosystems will be discussed and demonstrated with several field excursions in the natural environs of the DC area. Central to this course will be the understanding that modern human society is an integral part of nature, with the power to impact and influence elements of the natural world at multiple scales. An analysis of policy implications for the biosphere will be discussed.
**Prerequisite:** BSCI160 and BSCI161; or BSCI106.
**Restriction:** Must be in the Environmental Science and Technology major; or permission of instructor.

**ENST373 Natural History of the Chesapeake Bay (3 Credits)**
Consideration of the major groups of organisms associated with the Chesapeake Bay and current issues that determine humans' present and future uses for the Chesapeake and its biota.
**Cross-listed with:** BSCI373.
**Credit Only Granted for:** BSCI373 or ENST373.

**ENST388 Honors Thesis Research (3-6 Credits)**
Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.
**Restriction:** Permission of AGNR-Environmental Science & Technology department.
**Repeatable to:** 6 credits if content differs.

**ENST389 Internship (3 Credits)**
Credit will be granted for practical work carried out by students placed in work environment related to their stated career goals. Students must do an in-depth study in some portion of the work experience and produce a special project or report related to this study. A student work log is also recommended. An evaluation from the external supervisor of the project will be required. Credit arranged with supervising faculty member.
**Restriction:** Must be in Environmental Sci & Tech program.
**Repeatable to:** 6 credits if content differs.

**ENST403 Invasive Species Ecology (3 Credits)**
We will examine ecological, evolutionary, and anthropogenic processes facilitating or resisting biological invasions, and consider their environmental, economic, and human health impacts. We will consider various management strategies to mitigate invasions and identify areas of future research. Field trips and detailed discussion of recent findings and controversies in the literature will help illustrate fundamental concepts of invasions among various ecosystems.
**Credit Only Granted for:** ENST403, ENST603, or ENST689R.

**ENST404 Ecological and Natural Resources Ethics (3 Credits)**
Bridges science and management with ethical theory and concepts to help scientists, regulators, and managers understand how to deal with potential ethical dilemmas that arise in natural resource and environmental management implementation and policy development.
**Prerequisite:** ENST214 and ENST360.
**Recommended:** ENST314, ENST410, and ENST460.
**Restriction:** Senior standing or higher. Jointly offered with ENST604.
**Credit Only Granted for:** ENST604 or ENST404.

**ENST405 Energy and Environment (3 Credits)**
Introduction to the role of energy in environmental and human-dominated systems. Discussion of the historical and modern production and consumption of energy. Introduction to energy systems computer simulation and energy auditing.
**Prerequisite:** MATH140 or MATH120; or must have completed MATH220.
**Restriction:** Junior standing or higher. And must be in Environmental Sci & Tech program; or must be in Environmental Sci & Tech: Ecological Tech Design program; or must be in Environmental Sci & Tech: Environmental Health program; or must be in Environmental Sci & Tech: Soil & Watershed Science program; or must be in Environmental Sci & Tech: Natural Resources Mgmt program. Jointly offered with ENST605.
**Credit Only Granted for:** ENST405, ENSP350, ENST605, or MEES698Z.

**ENST410 Ecosystem Services: An Integrated Analysis (3 Credits)**
The importance of our ecosystems and the services they provide will be discussed. Basic principles used to analyze ecosystem services will be discussed and applied using case studies & field exercises. Forestland, wetlands and our marine resources are increasingly recognized for their ecosystem services provided to society, to include clean air and water, wildlife habitat, biodiversity, carbon storage and pollination services. This course will prepare students to deal with the complex issues involved in understanding those and other ecosystem services and their importance to society and environmental sustainability. Slowly, new markets are emerging for these services. Students will analyze the ecological, policy and financial dimensions of enhancing, restoring, and sustaining ecosystem services. New and on-going government programs and private business ventures will be discussed.
**Prerequisite:** ENST360 or BSCI361; or permission of instructor.
**Restriction:** Must be in one of the following programs (Environmental Sci & Tech: Ecological Tech Design; Environmental Sci & Tech; Environmental Sci & Tech: Natural Resources Mgmt; Environmental Sci & Tech: Soil & Watershed Science; Environmental Sci & Tech: Environmental Health).

**ENST411 Principles of Soil Fertility (3 Credits)**
Soil factors affecting plant growth and quality with emphasis on the bio-availability of mineral nutrients. The management of soil systems to enhance plant growth by means of crop rotations, microbial activities, and use of organic and inorganic amendments.
**Prerequisite:** ENST200; or students who have taken courses with comparable content may contact the department. Jointly offered with ENS T611.
**Credit Only Granted for:** ENST411 or NRSC411.
**Formerly:** NRS C411.

**ENST414 Soil Morphology, Genesis and Classification (4 Credits)**
Processes and factors of soil genesis. Taxonomy of soils of the world by U.S. System. Soil morphological characteristics, composition, classification, survey and field trips to examine and describe soils.
**Prerequisite:** Must have completed or be concurrently enrolled in ENST200.

**ENST415 Renewable Energy (3 Credits)**
An overview of renewable energy technologies and their current applications. Emphasis will be placed on technological readiness, efficiency and sustainability of renewable energy alternatives. Technologies include solar thermal, photovoltaics, biodiesel, ethanol, anaerobic digestion, wind, hydroelectric, and microbial fuel cells.
**Prerequisite:** CHEM131, PHYS121, and MATH113; or permission of AGNR-Environmental Science & Technology department.

**ENST417 Soil Hydrology and Physics (3 Credits)**
A study of soil water interactions: the hydrologic cycle; the unique properties of water and soil; the soil components and their interactions; the field water cycle; transport processes involving water, heat and solutes; human effects on soil and groundwater; as well as the measurement, prediction, and control of the physical processes taking place in and through the soil.
**Prerequisite:** ENST200; and (MATH113 or MATH115).

**ENST421 Soil Chemistry (4 Credits)**
The chemistry and composition of mineral and organic colloids in soils, including ion exchange, oxidation-reduction, acidity, surface charge, and solution chemistry. Lectures and readings pertain to plant nutrition, waste disposal, and groundwater quality.
**Prerequisite:** ENST200.

**ENST422 Soil Microbial Ecology (3 Credits)**
The interdisciplinary study of soil microorganisms and their interactions with the mineral matrix; resulting in processes such as nutrient cycling, decontamination, and natural product production. We will focus on the diversity of soil communities, their survival strategies, and the new strategies used to study these communities.
**Prerequisite:** ENST200; or 1 course in BCHM; or must have completed a course in microbiology; or students who have taken courses with comparable content may contact the department.
**Jointly offered with:** ENST622.

**ENST423 Soil-Water Pollution (3 Credits)**
Reaction and fate of pesticides, agricultural fertilizers, industrial and animal wastes in soil and water with emphasis on their relation to the environment.
**Prerequisite:** ENST200.

**ENST430 Wetland Soils (3 Credits)**
The soils of wetlands including hydrology, chemistry, and genesis are discussed. Federal and regional guidelines for wetland soils are covered with an emphasis on validating interpretations through field observations.
**Prerequisite:** ENST200.
**Credit Only Granted for:** ENST430 or ENST630.

**ENST432 Environmental Microbiology (3 Credits)**
Microorganisms are everywhere and mediate many of the processes that we observe everyday. These organisms are the unseen catalysts for numerous industrial processes and are critical to many emerging technologies and novel products. Environmental microbiologists ask: How do microorganisms in the environment benefit society? This course will answer this question by examining microbes in bioremediation, food safety, climate change, and biotechnology.
**Prerequisite:** CHEM131 and CHEM132.

**ENST434 Toxic Contaminants: Sources, Fate, and Effects (3 Credits)**
Study of the release to the environment, transport through natural compartments, persistence and ultimate fate of various classes of contaminants produced as a result of human activities. Topics will culminate in discussions of impacts to wildlife and human health. Students should emerge with a practical appreciation of the actual risks from exposure to a variety of environmental contaminants and an understanding of the environmental and human health implications of continuing the contaminating activities.
**Prerequisite:** ENST333 and ENST334.

**ENST436 Emerging Environmental Threats (3 Credits)**
Examine new and potential environmental concerns in the air, water, soil, space, and the built environment. Emphasis on studying the intrinsic links between ecosystem and human health. Topics will include climate change, resource consumption, biodiversity change, infectious disease, non-traditional pollutants, and other complex and significant environmental concerns.
**Prerequisite:** ENST233; or permission of AGNR-Environmental Science & Technology department.

**ENST441 Sustainable Agriculture (3 Credits)**
Environmental, social and economic needs for alternatives to the conventional, high-input farming systems which currently predominate in industrial countries. Strategies and practices that minimize the use of non-renewable resources.

**ENST445 Ecological Risk Assessment (3 Credits)**
Assessment of ecological impacts of perturbations on natural systems. Course will describe methods for estimating environmental impacts including extrapolating from laboratory and field data. The role of regulatory agencies and implications of scientific uncertainty on risk management will be covered.
**Prerequisite:** ENST360 or BSCI361; and (BIOM301 and ENST334). Or permission of AGNR-Environmental Science & Technology department.

**ENST450 Wetland Ecology (3 Credits)**
Plant and animal communities, biogeochemistry, and ecosystem properties of wetlands. Lectures are supplemented by field trips and in-class labs. Hands-on activities include identification of wetland plant species, wetland delineation, and collection and analysis of field data on wetland vegetation, soil, and hydrology. Wading boots (at least hip length) are strongly recommended.
**Prerequisite:** BIOM301 and ENST360, or equivalent courses in data analysis and ecology; or permission of AGNR-Environmental Science & Technology department.
**Jointly offered with:** ENST650.
**Credit Only Granted for:** ENST450, ENST650, or MEES650.

**ENST452 Wetland Restoration (3 Credits)**
Design, construction, and evaluation of wetlands restored or created to provide ecosystem services or to mitigate losses due to development. Topics include fundamental properties of wetlands, ecological restoration theory, site selection and goal-setting, design plans, practices for establishing wetland hydrology, substrate, and vegetation, and restored ecosystem monitoring.
**Prerequisite:** (BSCI160 and BSCI161; or BSCI106); and (BSCI362, ENST450, ENST360, or BSCI361).

**ENST453 Watershed Science: Water Balance, Open Channel Flow, and Near Surface Hydrology (3 Credits)**
Definition and delineation of watersheds based on the stream orders. Discussion of the principle of conservation of mass in the context of life cycles (water cycle, carbon cycle, photosynthesis, aerobic cycle, anaerobic cycle, and nitrogen cycle) as it relates to our Biosystem. Conceptual study of hydrologic cycle components and their prediction using empirical and physical-based models is covered. Role of water as the dynamic force within the context of its interaction with landscapes of diverse geology and land cover will be discussed. Elements of watershed management is discussed.
**Prerequisite:** MATH120, ENST200, GEOG306 or BIOM301.
**Recommended:** PHYS121.
**Credit Only Granted for:** ENST453 or ENST653.

**ENST456 Spatial Analysis and Ecological Sampling (3 Credits)**
Teaches ENST students ecological sampling methods and applied spatial analysis skills. Students will work in small groups on research projects they develop and test during the semester. Students will develop a research hypothesis, test their hypothesis, display it visually in QGIS, and analyze it with appropriate statistical methods in QGIS and R Studio culminating in a final presentation.
**Recommended:** GEOG306 and GEOG373.
**Restriction:** Senior standing or higher; and permission of instructor.
**Additional Information:** Students will need to provide an 8GB (or larger) thumb drive for data storage.

**ENST460 Principles of Wildlife Management (3 Credits)**
Ecological principles and requirements of wildlife as basis for management, and introduction to the scientific literature. Conflicts in wildlife management, government administration of wildlife resources, legislation, and history of the wildlife management profession.
**Prerequisite:** Must have completed two semesters of biology laboratory; and (ENST360; or BSCI361). Or permission of AGNR-Environmental Science & Technology department.

**ENST461 Urban Wildlife Management (3 Credits)**
Ecology and management of wildlife in urban areas. For students in biological sciences, geography, landscape design, natural resources management, recreation and urban studies. Planning, design, and wildlife conservation in landscape ecology. Public attitudes, preferences, and values, review of private conservation organizations.

**ENST462 Field Techniques in Wildlife Management (3 Credits)**
Hands-on experience with field techniques in wildlife management focusing on various methods of conducting indices, estimates, and censuses of wildlife populations. Includes capture and handling of amphibians, reptiles, birds, and mammals by use of drift fences, cover boards, mist nets, box traps, and dart guns.
**Prerequisite:** ENST460. And BSCI160 and BSCI161; or BSCI106. And BSCI170 and BSCI171; or BSCI105.
**Recommended:** ENST461.
**Restriction:** Permission of AGNR-College of Agriculture & Natural Resources.

**ENST470 Ideas into Impact (3 Credits)**
This will be a capstone-type course based around developing proposals for projects emphasizing research, monitoring, design, restoration, managament, entrepreneurship, or other approaches to ecological or environmental questions, issues, or problems.
**Restriction:** Junior or Senior standing only; Permission of AGNR-Environmental Science & Technology department.

**ENST472 Capstone (3 Credits)**
This capstone course focuses on professional project preparation, presentation, and critical evaluation on environmental science research. Students will develop and present original projects and critique projects presented by others.
**Restriction:** Must be in a major within AGNR-Environmental Science & Technology department; and permission of AGNR-Environmental Science & Technology department.
**Additional Information:** This is the pinnacle course for students majoring in ENST and is therefore recommended in one of the students' final semesters.

**ENST481 Ecological Design (4 Credits)**
An advanced survey course on the field of ecological design. Principles of design are illustrated with case studies from biologically-based waste treatment systems, ecosystem management and sustainable development. Concepts covered include ecology, ecological engineering, nutrient cycling, emergy, lifecycle analysis, and design process. Technologies include treatment wetlands, living machines, anaerobic digestion, rain gardens, bioswales, bioremediation, algal turf scrubbers, and green building design.
**Prerequisite:** (MATH120 or MATH140; or must have completed MATH220); and (PHYS121 and CHEM131); and (BSCI361; or students who have taken courses with comparable content may contact the department). Or permission of instructor.
**Jointly offered with:** MEES681.
**Restriction:** Permission of AGNR-Environmental Science & Technology department.
**Credit Only Granted for:** ENST481, ENST681, or MEES681.

**ENST485 Water Management in Urban Environment (3 Credits)**
Historically, with the exception of certain locations, water has been available in sufficient quantities, and providing supporting infrastructure has been relatively straightforward. In urban areas, the concentration of people and the drastic changes in land use, have altered the fluxes of water, sediments, chemicals, and microorganisms. As the population increases and the number of large urban areas keeps growing (both in U.S. and internationally), managing water in urban areas is becoming more challenging. Water must be supplied for domestic, commercial, and industrial use, as well as irrigation and maintaining and enhancing local environments (e.g., urban streams). In addition, stormwater must be managed to prevent flooding and environmental damage, and used water, which contains organic matter, nutrients, and other constituents that can be extracted and reused, must be collected and managed. In this course we take a systems approach to urban water hydrology, engineering, planning and management. We will explore urban water cycle, urban runoff and drainage characteristics, urban water supply and demand, stormwater collection and treatment and designing best management practices. Additionally, we look at the climate impacts on the urban water cycle.
**Prerequisite:** MATH120, MATH130, MATH136, or MATH140.

**ENST486 Senior Professional Experience (3 Credits)**
Students will arrange an off-campus professional-level work experience related to Environmental Science and Technology (ENST) to develop expertise in a specific area of their ENST concentration curriculum. Classroom sessions will frame student experiences within the broader discipline of Environmental Science and Technology. This course will tie together current practices in the ENST career industry, proposal writing, critical analysis, and culminate in a final paper and presentation.
**Prerequisite:** ENST389.
**Restriction:** Must be in the Environmental Science and Technology program; and permission of AGNR-Environmental Science & Technology department.
**Additional Information:** The course has two types of activities: lecture and experiential learning. Students are expected to work on their professional-level experience for 90 hours and participate in a 2-hour lecture every other week, during the semester to develop their Senior Integrative Experience (SIE) project. Each student's research question, proposal methodology, analysis, paper, and presentation will follow learning outcomes of all ENST SIE course options.

**ENST487 Environmental Conflicts and Decision Making (2 Credits)**
Study major cases which focus on environmental science with concentration on the role and techniques of negotiation, collaborative decision making, and adaptive resource management as an environmental conflict resolution process.
**Restriction:** Senior standing. And must be in one of the following programs (Environmental Sci & Tech: Natural Resources Mgmt; Environmental Sci&Pol-Wildlife Ecology & Mgmt) ; or permission of AGNR-Environmental Science & Technology department.

**ENST489 Research Experience (3 Credits)**
An advanced research-based course in the field of environmental science and technology.
**Restriction:** Permission of AGNR-Environmental Science & Technology department.
**Repeatable to:** 6 credits.

**ENST499 Special Topics in Environmental Science and Technology (1-4 Credits)**
An independent study, and/or lecture, and/or laboratory series organized to study a selected phase of Environmental Science and Technology not covered by existing courses. Credit arranged with supervising faculty member.
**Restriction:** Permission of AGNR-Environmental Science & Technology department.

# EPIB - Epidemiology and Biostatistics

**EPIB300 Biostatistics for Public Health Practice (3 Credits)**
An examination of biostatistical concepts and procedures as they relate to contemporary issues in public health. Focus on applications, hands-on-experience, and interpretations of statistical findings in public health research.
**Prerequisite:** Minimum grade of C- in CHEM131 and CHEM132.
**Restriction:** Must be in Public Health Science program; and must have earned a minimum of 60 credits.
**Credit Only Granted for:** EPIB300, EPIB315 or HLTH300.

**EPIB301 Epidemiology for Public Health Practice (3 Credits)**
An examination of the discipline of epidemiology and its application to public health issues and practices, covering current epidemiological concepts and methods.
**Restriction:** Must be in Public Health Science program; or must be in Community Health program. And must have earned a minimum of 45 credits.

**EPIB315 Biostatistics for Public Health Practice (3 Credits)**
An examination of biostatistical concepts and procedures as they relate to contemporary issues in public health. Focus on applications, hands-on-experience, and interpretations of statistical findings in public health research.
**Prerequisite:** Minimum grade of C- in EPIB301; or must have completed or be concurrently enrolled in HLTH200.
**Restriction:** Must be in one of the following programs (Public Health Science; Community Health).
**Credit Only Granted for:** EPIB300 or EPIB315.
**Formerly:** EPIB300.
**Additional Information:** Course is cross-listed; students should check program advising information to determine which counts for their major. Note that EPIB300 (old number) is still offered for students under previous curriculum.

**EPIB330 Introduction to Infectious Disease Epidemiology (3 Credits)**
Introduces students to the study of infectious disease through the application of epidemiologic methods. Students will review how infectious diseases impact global health, and examine epidemiological concepts related to infectious disease. These concepts include infectious disease transmission, prevention and control; study design; and outbreak and epidemic investigations. Infectious disease topics of concern to public health professionals will be covered including the COVID-19 pandemic, sexually transmitted infections, foodborne infections, healthcare-acquired infections and neglected tropical diseases, and future trends in the field of infectious diseases.
**Prerequisite:** EPIB301.

**EPIB399 Epidemiology and Biostatistics Independent Study (1-3 Credits)**
The EPIB undergraduate independent study is an opportunity for undergraduates from other departments in the SPH or the university to work with an Epidemiology and Biostatistics faculty member on research or special projects that are based out of EPIB.
**Restriction:** Must have earned a minimum of 60 credits; and minimum cumulative GPA of 3.0.
**Repeatable to:** 6 credits if content differs.

**EPIB400 Obesity: An Epidemiologic Perspective (3 Credits)**
The epidemic of obesity, its causes and consequences, and issues related to energy balance will be covered. Students will characterize the obesity epidemic both nationally and internationally, compare and contrast the metrics of obesity, understand the biological consequences of different obesity phenotypes, and describe characteristics of the obesogenic environment. Throughout the course students will be introduced to the application of epidemiological methods to studies of obesity.
**Prerequisite:** 1 course with a minimum grade of C- from (EPIB301, HLTH301).

**EPIB463 Introduction to Biostatistical Programming (3 Credits)**
An introduction to basic programming principles; data analysis tasks such as the calculation of summary statistics and the creation of graphs; and the implementation of statistical analysis concepts such as T-tests, ANOVA and correlation. Querying and managing data sets using SQL in SAS will also be covered.

**EPIB489 Special Topics in Epidemiology or Biostatistics (1-6 Credits)**
Special topics in epidemiology or biostatistics.
**Repeatable to:** 6 credits if content differs.

# FGSM - Federal and Global Fellows

**FGSM310 Political Engagement and Advocacy (3 Credits)**
An examination of questions and issues in the practice of political engagement and advocacy. Guest lecturers drawn from political, civic engagement, and advocacy arenas will visit class and participate in discussions.
**Cross-listed with:** HNUH318T.
**Restriction:** Must be in the Federal Fellows Program; and permission of instructor.
**Credit Only Granted for:** HNUH318T or FGSM310.

**FGSM320 Public Health Policy (3 Credits)**
An exploration of the major questions and issues facing the U.S. health care system as well as the formulation and implementation of health policy.
**Cross-listed with:** HNUH328T.
**Restriction:** Must be in the Federal Fellows Program; and permission of instructor.
**Credit Only Granted for:** UNIV348P, HNUH328T or FGSM320.
**Formerly:** UNIV348P.

**FGSM330 Homeland and National Security Policy (3 Credits)**
An examination of the concept of U.S. homeland and national security, threats, and major vulnerabilities in the context of recent history.
**Cross-listed with:** HNUH338T.
**Restriction:** Must be in the Federal Fellows Program; and permission of instructor.
**Credit Only Granted for:** UNIV348T, HNUH338T or FGSM330.
**Formerly:** UNIV348T.

**FGSM340 Energy and Environmental Policy (3 Credits)**
An examination of issues of energy and environmental sustainability through an investigation of policy-making in energy, climate change, and sustainable development.
**Cross-listed with:** HNUH348T.
**Restriction:** Must be in the Federal Fellows Program; and permission of instructor.
**Credit Only Granted for:** UNIV348E, HNUH348T or FGSM340.
**Formerly:** UNIV348E.

**FGSM350 Critical Regions and International Relations (3 Credits)**
An examination of international relations and foreign policy challenges in critical regions.
**Cross-listed with:** HNUH358T.
**Restriction:** Must be in the Global Fellows Program; and permission of instructor.
**Credit Only Granted for:** HNUH358T or FGSM350.

**FGSM360 U.S. Diplomacy and Policymaking (3 Credits)**
An examination of questions and issues in the practice of contemporary diplomacy and policy-making. Guest lecturers drawn from Washington policy-making and foreign service communities will visit class and participate in discussion.
**Cross-listed with:** HNUH368T.
**Restriction:** Must be in the Global Fellows Program; and permission of instructor.
**Credit Only Granted for:** HNIUH368T or FGSM360.

**FGSM370 Science Diplomacy: Foreign Policy & Science, Technology, and Innovation (3 Credits)**
An exploration of the critical roles scientific knowledge and technological innovation play in the formation and implementation of foreign policy issues, including energy and climate change, public health, space and innovation, and economic development.
**Cross-listed with:** HNUH378T.
**Restriction:** Must be in the Global Fellows Program; and permission of instructor.
**Credit Only Granted for:** UNIV389F, HNUH378T or FGSM370.
**Formerly:** UNIV389F.

**FGSM380 Responses to Global Challenges (3 Credits)**
An examination of global issues and responses primarily from the perspective of the practitioner. The focus will be on social, humanitarian, and human rights issues in different global contexts.
**Cross-listed with:** HNUH388T.
**Restriction:** Must be in the Global Fellows Program; and permission of instructor.
**Credit Only Granted for:** UNIV389B, HNUH388T or FGSM380.
**Formerly:** UNIV389B.

**FGSM390 Global Health Challenges and Water Security (3 Credits)**
An examination of questions and issues of global health and water security. Expert practitioners will also visit class and participate in discussions.
**Cross-listed with:** HNUH398T.
**Restriction:** Must be in the Global Fellows Program; and permission of instructor.
**Credit Only Granted for:** HNUH398T, HONR378M, or FGSM390.

**FGSM398 Federal and Global Experiential Learning (3-9 Credits)**
This is the experiential course component of the Federal Fellows Program and Global Fellows Program.
**Cross-listed with:** HNUH398P.
**Restriction:** Permission of instructor.
**Repeatable to:** 9 credits if content differs.
**Credit Only Granted for:** FGSM398 or HNUH398P.

# FIRE - First-Year Innovation & Research Experience

**FIRE120 FIRE SEMESTER 1 (3 Credits)**
Engages the research process through the design, research, collaborative authorship and iterative review-based refinement of research proposals. Students find and analyze primary literature, think creatively, author and communicate research proposals in a scholarly fashion and work collaboratively to solve scientific and societal problems using technology, delegation and productive team communication.
**Additional Information:** This is the first course in the FIRE (First-Year Innovation & Research Experience) program sequence.

**FIRE198 FIRE SEMESTER 2 (2 Credits)**
This is the second course in the FIRE (First-Year Innovation & Research Experience) program sequence. Students in this course join a research stream and gain discipline-specific training in that lab. This course focuses on the concepts related to the process of independent research including collaboration with peers, communication of ideas, troubleshooting unexpected outcomes, and discipline-specific methodologies.
**Recommended:** FIRE120.

**FIRE199 Research Internship (3 Credits)**
Research and mentorship-centered course designed to provide research experience, technical skill sets, an understanding of the expectations and requirements of research environments, and broad professional development. Students in this course work directly with a faculty mentor and peers in laboratory and other research environments on the design and fulfillment of authentic and discipline-relevant research outcomes. The iterative advancement of final research products contributes to the development of higher capacities in collaboration and teamwork, communication, critical thinking, and discipline-specific training and skill sets.
**Repeatable to:** 12 credits.

**FIRE298 FIRE Semester 3 (3 Credits)**
Capstone course in the FIRE (First-Year Innovation & Research Experience) program sequence. Students in this course transition from trainee to practitioner in their lab. This course focuses on the concepts related to the process of independent research including collaboration with peers, communication of ideas, troubleshooting unexpected outcomes, and discipline-specific methodologies.
**Prerequisite:** FIRE198.
**Repeatable to:** 3 credits.

**FIRE398 FIRE Research Leadership (1-3 Credits)**
Earn academic credit for the time spent supporting, mentoring, and leading students in FIRE Research streams.
**Prerequisite:** FIRE298.
**Repeatable to:** 12 credits.

# FMSC - Family Science

**FMSC110 Families and Global Health (3 Credits)**
Students will explore, define, and study global health, social determinants of health, health inequalities, gender inequality, family violence, and maternal and child health using a global perspective.

**FMSC111 Credit Cards and College Students (1 Credit)**
Provides college students with factual information about basic money management skills, emphasizing the responsible use of credit, specifically credit cards. Topics will include financial goals, spending plan, wise use of credit, debt management, consumer credit protection, and ID Theft. Online lessons will include video clips and interactive class activities. Students will learn the basics to build a strong financial future.
**Recommended:** Moderate level of computer literacy, especially Internet and ELMS. Reliable computer and Internet access.
**Credit Only Granted for:** FMSC111, FMSC341 or FMSC498D.
**Formerly:** FMSC498D.

**FMSC123 Personal Financial Literacy: From Distress to Success (3 Credits)**
Exploring strategic thinking, career, education, financial planning during college years as the foundation for success in living a meaningful life. While introducing relevant institutions and tools techniques that are critical for financial planning, this course applies value-based goal setting and strategic planning that inform individuals' paths for a successful career, educational attainment, and optimum (mental, physical and financial) wellbeing throughout their life cycle. The course particularly emphasizes the individual's responsibility of living in an institution rich society, where, continuous learning, understanding institutions, rational decision-making, valuing relationships and networking, early career development, record keeping, budgeting, generating income and wealth, purposeful spending, saving and investing, tax planning, appropriate use of loans, risk taking and insurance, and retirement planning are well rewarded and ensure the optimum use of college years and the rest of life-course.

**FMSC170 Modern Families (3 Credits)**
What is a Family? Engage in examination of the current trends and controversial issues in family life, including issues of marriage, reproductive technologies, adoption, child custody, remarriage, and marital violence.
**Credit Only Granted for:** FMSC170 or FMSC298F.
**Formerly:** FMSC298F.

**FMSC186 Family Law and Ethics in Assisted Reproduction (1 Credit)**
For students interested in studying the law, public health and/or family science, this course examines the cutting-edge law and ethics of assisted reproduction including the technologies of sperm and egg donation, in vitro fertilization, surrogacy, and reproductive organ transplants, and the impact on families.

**FMSC190 Man Up! Where Are The Fathers? (3 Credits)**
An examination of changing fatherhood roles, health, and inequality in diverse families. Focus will be on masculinities and disparities among men by race and class; provider role expectations; and trauma and violence faced by men in contemporary society.

**FMSC215 Foster Care and Adoption; Law, Policy, and Family (1 Credit)**
In this Student Initiated Course, students will examine their preconceived notions of foster care and adoption as they work to become agents for change in the systems. Regular guest speakers will share their experiences. Along with your student instructor you'll explore various outcomes of the systems including trauma, mental health and later-life outcomes. Your faculty instructor will encourage you to critically think about legal and policy issues, both in Maryland and internationally, like the foster to prison pipeline and adopting from other cultures. Students will examine contentious issues like legal interventions, LGBTQ, Native American Indian, transracial, religious and others relating to the systems and the socioeconomic impacts on families. Classes are student-driven and discussion-based, allowing students to explore ethical considerations and possible life paths.

**FMSC260 Couples, Marriage, and Families: Intimate Relationship Across the Life Course (3 Credits)**
Covers the different aspects of couple relationships and family life. This includes common problems in couple relationships, and resources to strengthen couple and family relationships. You will also learn about stages of relationships, theories of love and family, policy related to couples and family formation, and how research is conducted with couples and families. Together, we will discuss and explore issues that couples and families face in modern times and will consider how many of these issues have changed due to policy, technology, attitudes, and a variety of other societal factors that impact relationships in the 21st century. You will also learn important methods of strengthening current and future relationships.

**FMSC265 Teaching Menstrual Health: Dispelling Myths and Misconceptions (3 Credits)**
Provides a platform to teach UMD undergraduate students and BHU Bachelor of Education students about the intersections of gender, culture, and health. We will explore how menstruation is addressed in different cultures and uncover myths and misconceptions that impact individuals, their families and communities. Furthermore, the course emphasizes the health cost (physical and mental) of not educating youth about this vital process and discusses the need for an intervention. The course provides essential skills to participating students for the development of an intervention. Key concepts include: theoretical understanding of menstrual health and its impact on girls and women's lives from cross cultural perspectives, the importance of deconstructing myths and misconceptions and the importance of educating both girls and boys; cultural taboos and patriarchal power relations that contribute to myths, misconceptions and practices; public health interventions addressing the cost of ignoring adolescent health issues including menstrual health; the impact of providing agency to young girls and boys to challenge the status-quo; and links between knowledge about menstruation, human rights, gender equality and the SDGs.

**FMSC270 Sex, Drugs, and Social Media: Adolescent Health and Development (3 Credits)**
This course will ask: How can families, schools, communities, and society help adolescents to navigate contemporary stressors and develop into physically and mentally healthy adults? To do this, we will use research, and an understanding of adolescent development, to explore and analyze issues affecting the health and behavior of American adolescents. Such issues include (but are not limited to) sex education, the role of social media in mental health, substance use, policing in schools, dating violence, suicide prevention, access to sexual and reproductive health care, and school start times. We will consider how adolescent well-being is shaped by social contexts, including the role of parents and family members, peers, schools, communities, social media, and culture. We will examine policies and programs that affect adolescents, how effective they are at promoting adolescent health, and how they might be improved to better support healthy adolescent development.

**FMSC280 Global, Child & Family Health: Getting There Via E-Communications (3 Credits)**
Students will learn about global maternal, child and family health issues and how these issues may affect their lives. Interdisciplinary teams of students will collaborate to develop programs aimed at improving global family health through the use of information and communications technologies.
**Credit Only Granted for:** FMSC280 or FMSC289G.
**Formerly:** FMSC289G.

**FMSC286 Assisted Reproduction Law and Policy in the US and Brazil (3 Credits)**
In this Global Classroom, U.S. students will work synchronously online with their international partners in Brazil to critically think about cutting-edge ethical, legal, policy and scientific issues in the field of Assisted Reproduction Technologies (ART) in the two countries. This course looks at conventional families created in unconventional ways to examine such topics as sperm and egg donation, in vitro fertilization, surrogacy, reproductive organ transplants and more - while considering the social, cultural, racial, religious, economic, or socioeconomic contexts that influence each. Students will work with their foreign peers in small groups to compare ART in each country and then create proposed legislation for either the U.S. or Brazil which their international group will present online to their colleges and submit to the country's legislators. In so doing, students will be challenged to think critically and see their place in creating actionable change in a global society.
**Credit Only Granted for:** FMSC186 or FMSC286.
**Additional Information:** This is a global classroom course where students will learn online, meet once a week in a synchronous class on Webex with their Brazilian classmates, and work individually via Webex in small international groups.

**FMSC289 Special Topics in Family Science (3 Credits)**
Topics of special interest under the general guidance of the Department of Family Science.
**Repeatable to:** 9 credits if content differs.

**FMSC290 Family Economics (3 Credits)**
Application of economic methodology to study families under various economic situations. Examination of how decisions about marriage, divorce, fertility, consumption and time use are influenced by labor/housing markets, tax structure, social welfare benefits and other economic considerations.
**Credit Only Granted for:** FMSC290 or FMST290.
**Formerly:** FMST290.

**FMSC298 Special Topics in Family Science (1-3 Credits)**
Topics of special interest under the general guidance of the Department of Family Studies.
**Repeatable to:** 12 credits if content differs.
**Formerly:** FMST298.

**FMSC302 Research Methods in Family Science (3 Credits)**
Introduction to the methods of the social and behavioral sciences employed in family science. The role of theory, the development of hypotheses, measurement, design, and data analysis.
**Prerequisite:** Must have completed an introductory statistics course.
**Restriction:** Must be in a major within SPHL-Family Science department.
**Credit Only Granted for:** FMSC302 or FMST302.
**Formerly:** FMST302.

**FMSC310 Maternal, Child and Family Health (3 Credits)**
Overview of the major issues in Maternal, Child, and Family Health in the U.S. and the world. The course will cover the social, political, environmental, and economic factors that shape the health of women, children, and families throughout the life course. It will employ the core disciplines of public health -- 1) epidemiology/biostatistics, 2) environmental health, 3) health policy and administration, and 4) social and behavioral health -- to examine these factors. The course introduces specific issues and interventions and places these issues and interventions within their broad sociohistorical context.
**Credit Only Granted for:** FMSC310, FMSC410 or FMSC498A.
**Formerly:** FMSC498A and FMSC410.
**Additional Information:** A comprehensive understanding of maternal, child, and family health, with additional emphasis on environmental health, needs assessment and evaluation, enabling students to more effectively address issues in the workplace.

**FMSC330 Family Health: Health Happens in Families (3 Credits)**
The objective of this gateway course is to help you understand and apply basic theories and empirical data on family health. The course is designed to provide you with skills to think critically about theories including: Life Course Theory, the Bio-Ecological and Social-Ecological Models, and Systems Theory. We will ask questions about the distinct qualities and intersections of contexts and characteristics that impact the functioning of families. We will apply theory and research to topical issues in family health that are impacted by social structures such as conflict, crisis, migration, incarceration and inequalities.
**Restriction:** Junior standing or higher.

**FMSC332 Children in Families (3 Credits)**
A family life education approach to the study of children and families. Emphasis on the interaction of children with parents, siblings, extended kin, and the community.
**Prerequisite:** PSYC100 or FMSC105.
**Credit Only Granted for:** FMSC332 or FMST332.
**Formerly:** FMST332.

**FMSC340 Mental Health and Healing in Families (3 Credits)**
Using an interdisciplinary approach to study mental health, mental wellness, and substance use, we will answer questions such as: How has our understanding and treatment of mental health changed throughout history? What are the current prevalence patterns and risk factors associated with mental health conditions? What is the prevention to postvention continuum? What is the role of relationships, families, and communities in addressing mental health? How do we diagnose and treat various mental health disorders using the best available research? And, what are the various mental health disciplines and how do they differ? This course is designed to examine mental health issues across the life course. We will explore the influence of social contexts, including racism and additional forms of othering, on mental health and wellness, and introduce the health systems that support mental health prevention and treatment.

**FMSC341 Personal and Family Finance (3 Credits)**
Individual and family financial strategies with emphasis on financial planning, savings, investments, insurance, income taxes, housing, and use of credit. Planning, analyzing, and controlling financial resources to resolve personal/family financial problems and to attain financial security.
**Credit Only Granted for:** FMSC341 or FMST341.
**Formerly:** FMST341.

**FMSC374 Working with Diverse Families in Public Health Services (3 Credits)**
Focuses on the "doing" and modeling of skills required in navigating diverse social environments with families. These skills are necessary to engage in authentic work as family scientists, public health professionals, and family health practitioners. Using an intersectional framework, we will examine cultural, ethnic, and linguistic diversity for families impacted by challenges to equity and privilege. The course material emphasizes deep knowledge and skill building towards cultural sensitivity, including history, values, language, religion, and communication with families across multiple racial and ethnic backgrounds. Students will also explore differences emerging from experiences of poverty, sexual orientation and gender identity, and disability. The goal of the course is to support students in developing a family/professional alliance for health and well-being.
**Prerequisite:** FMSC110.

**FMSC381 Family Inequality (3 Credits)**
Social, political, cultural and economic factors influencing income and wealth in American families.
**Prerequisite:** SOCY100 or SOCY105.
**Restriction:** Must be in a major within SPHL-Family Science department.

**FMSC382 Family Mediation and Negotiation (3 Credits)**
Investigates mediation as a forum of peaceful intervention. It is designed to provide students with an introduction and basic understanding of the essential principles of mediation and opportunities to put those principles to work. In so doing, students will obtain an in-depth knowledge of a practical "hands on" approach to divorce mediation as the conduct mediation skill builders and facilitate a successful mediation. Students will learn major mediation interventions and how such interventions may help establish a new dynamic among family members in their communications and relationships. To assist in understanding, we will discuss family law issues and ethics. The course also includes a focus on negotiation theory and skills and students will conduct a negotiation. We will use multi-media presentations, real life mediation observation, lecture and class discussion, role-play, and academic review and critic to reach the course goals and objectives.
**Recommended:** FMSC487 and FMSC341.
**Credit Only Granted for:** FMSC498M or FMSC382.
**Formerly:** FMSC498M.

**FMSC383 Health and Human Services Delivery and Evaluation (3 Credits)**
Processes of service delivery with special emphasis upon relationships among managers, service providers and clients. The impact of human service systems on families.
**Prerequisite:** FMSC330.
**Restriction:** Must be in a major within SPHL-Family Science department.

**FMSC386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Permission of SPHL-Family Science department.
**Restriction:** Junior standing or higher.
**Credit Only Granted for:** FMSC386 or FMST386.
**Formerly:** FMST386.

**FMSC399 Independent Study (1-6 Credits)**
**Prerequisite:** Permission of SPHL-Family Science department.
**Repeatable to:** 12 credits.
**Formerly:** FMST399.

**FMSC420 African American Families (3 Credits)**
Examination of the history, structure, cultural foundation, and diversity of African American family life is the focus of this class. Presentations and discussions enable students to identify, analyze, and assess: (1) the major theoretical perspectives used in the study of African American families; (2) the impact of social policy on African American families; and (3) specific areas of family life (e.g., marriage and divorce, parenting, child development, health disparities).
**Recommended:** FMSC330.
**Credit Only Granted for:** FMSC420 or FMSC498F.
**Formerly:** FMSC498F.

**FMSC430 Gender Issues in Families (3 Credits)**
The development of historical, cultural, developmental, and psychosocial aspects of masculinity and femininity within the context of contemporary families and the implications for interpersonal relations.
**Prerequisite:** SOCY100, SOCY105, or PSYC100.

**FMSC431 Family Crises, Emergencies and Interventions (3 Credits)**
Examines the stressors in life that may lead families into a state of crisis or emergency and what can be done to help families when the need arises. Both internal stressors, such as substance abuse, finances, divorce, illness or parent-child conflict, and external stressors, such as community violence and natural disasters, are examined. Using theories and techniques for intervention and enhancement, the course examines factors involved in stressors turning into a family crisis and how factors such as emergency preparedness, social support and public policy can be a source of family resilience or protect families from negative outcomes.
**Prerequisite:** PSYC100.

**FMSC432 Adult Development and Aging in Families (3 Credits)**
Theory, research, history, and programming related to adult development and aging in the intergenerational context of family.
**Prerequisite:** PSYC100; and (SOCY100 or SOCY105). And FMSC332; or must have completed a comparable development course.
**Restriction:** Must be in a major within SPHL-Family Science department.
**Credit Only Granted for:** FMSC432 or FMST432.
**Formerly:** FMST432.

**FMSC440 Death and Loss in Family Life (3 Credits)**
Examination of how families experience grief and loss resulting from the death of a family member, including health and financial consequences. Overview of historical, social, psychological, cultural, medical, and legal dimensions of death in families from diverse backgrounds. Exploration of how the health care system and funeral home industry assist families in managing death and loss.
**Recommended:** Moderate level of computer literacy, especially Internet and ELMS. Reliable computer and Internet access.
**Credit Only Granted for:** FMSC440 or FMSC498B.
**Formerly:** FMSC498B.

**FMSC445 Sexuality: Issues in Family Therapy and Service Delivery (3 Credits)**
Typical, dysfunctional, and pathological sexual functioning, including effects on individuals, couples, and family systems. Sensitizes students to sexual issues, explores how perceptions of such issues affect work with people, and emphasizes implications for marriage and family therapy.
**Prerequisite:** A basic course in human sexuality; and permission of instructor. Jointly offered with FMSC645.
**Credit Only Granted for:** FMSC445 or FMSC645.

**FMSC460 Violence in Families (3 Credits)**
Theories of child, spouse, and elder abuse in the family setting. Emphasis on historical, psychological, sociological and legal trends relating to physical, emotional, and sexual abuse. Introduction to methods for prevention and remediation.
**Prerequisite:** SOCY100, SOCY105, or PSYC100.
**Credit Only Granted for:** FMSC460 or FMST460.
**Formerly:** FMST460.

**FMSC477 Internship and Analysis in Family Science (3 Credits)**
A supervised internship and a seminar requiring analysis. Opportunities to integrate theory and practice including 120 hours of contracted field experience. Summer or fall internship contracts due May 1; Spring contracts due December 1. See department for application procedures.
**Prerequisite:** FMSC383; and 9 credits in FMSC courses; and permission of SPHL-Family Science department.
**Restriction:** Must be in a major within SPHL-Family Science department.
**Credit Only Granted for:** FMSC477, FMST347, or FMST477.
**Formerly:** FMST477.

**FMSC485 Introduction to Family Therapy (3 Credits)**
The fundamental theoretical concepts and clinical procedures of marital and family therapy including premarital and divorce therapy issues.
**Prerequisite:** FMSC330; or 1 course from PSYC300-499 course range.
**Credit Only Granted for:** FMSC485 or FMST485.
**Formerly:** FMST485.

**FMSC486 Law, Public Health and the Cuban Family (4 Credits)**
A short-term summer study abroad course that is a comparative law and public health course. Students travel to Havana, Cuba to compare family problems in a capitalist versus socialist society within the context of legal, public health, social, cultural and economic changes.
**Recommended:** FMSC487.
**Jointly offered with:** FMSC686.
**Credit Only Granted for:** FMSC486, FMSC686 or MIEH698B.
**Additional Information:** This is a study abroad course which will primarily occur in Cuba. Additionally, the course involves an online component prior to and following the trip.

**FMSC487 Family Law (3 Credits)**
Designed for students interested in studying the law, public health, and family science, this course provides students with a general overview of family law and the impact on healthy families. The course also includes the study of cutting-edge issues such as marriage equality, assisted reproduction and ethical issues that may arise.

**FMSC498 Special Topics: Family Science (1-3 Credits)**
Special course topics in family studies.
**Prerequisite:** Permission of SPHL-Family Science department.
**Repeatable to:** 6 credits if content differs.
**Formerly:** FMST498.

# FREN - French

**FREN103 Intensive Elementary French (4 Credits)**
Covers speaking, reading, writing, listening, and culture of French-speaking world.
**Prerequisite:** Must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Must not have completed FREN102; and must not be a native/fluent speaker of French.
**Credit Only Granted for:** FREN102 or FREN103.

**FREN169 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**FREN203 Intensive Intermediate French (4 Credits)**
Covers speaking, reading, writing, listening, and culture of French-speaking world.
**Prerequisite:** FREN103; or must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Must not be a native/fluent speaker of French.
**Credit Only Granted for:** FREN201 or FREN203.

**FREN204 French Grammar and Composition (3 Credits)**
Intensive study of French grammar and composition.
**Prerequisite:** FREN201 or FREN203; or must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Not open to native/fluent speakers of French.

**FREN211 French Reading and Conversation (3 Credits)**
Practice in spoken French at intermediate level based on readings in a variety of genres. Written homework and exams.
**Prerequisite:** FREN201 or FREN203.
**Restriction:** Must not be a native/fluent speaker of French.

**FREN241 Women Writers of French Expression in Translation (3 Credits)**
Works and ideas of 20th century women writers of French in Canada, Africa, the Caribbean and France. Taught in English.

**FREN242 Francophone Writers of Africa and the African Diaspora (3 Credits)**
An analysis of the works and ideas of 20th and 21st century Francophone writers (Africa, the Caribbeans, France). Taught in English.

**FREN243 Masterpieces in French and Francophone Cinemas (3 Credits)**
This course, taught in English, will present a large array of films directed by famous French directors (Jean Renoir, Robert Bresson, Jean-Luc Godard, Agnes Varda, etc..) and Francophone filmmakers (Arcand, Sembene) who were internationally known in their time and have had a considerable influence on today's filmmakers in the U.S. (Tarantino, Lynch, Lee, etc..) and abroad (Sissoko, Angelopoulos, VonTrier, ect..).

**FREN250 Introduction to Cultural and Textual Analysis (3 Credits)**
Introduction to cultural and textual analysis of selected readings from various genres in French literature. Taught in French.
**Prerequisite:** FREN204; or students who have taken courses with comparable content may contact the department.
**Restriction:** Must not be a native/fluent speaker of French.
**Credit Only Granted for:** FREN250 or FREN250H.

**FREN269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**FREN298 Aspects of French Civilization (3 Credits)**
Topic to be determined each semester. Historical or thematic approaches to French art, literature, and culture. Taught in English.
**Repeatable to:** 6 credits if content differs.
**Additional Information:** Credit may not be applied to French major.

**FREN301 Composition and Style (3 Credits)**
Grammatical analysis, elements of style; range of written genres.
**Prerequisite:** FREN250; or students who have taken courses with comparable content may contact the department.
**Restriction:** Must not be a native/fluent speaker of French.

**FREN302 Introduction to Translation (3 Credits)**
Hands-on practice in translation to include a variety of formats and texts (for example, advertising, legal, technical, literary, journalistic, media...) into French and/or English. Includes an extensive overview of translation techniques, theories and approaches. Taught mainly in French.
**Prerequisite:** FREN301; or students who have taken courses with comparable content may contact the department.

**FREN303 Translation: English to French (3 Credits)**
Practicum in translation primarily from English to French; contrastive analysis.
**Prerequisite:** FREN301; or students who have taken courses with comparable content may contact the department.

**FREN306 Commercial French I (3 Credits)**
Introduction to commercial French including correspondence and business terminology. Emphasis on cross-cultural concepts needed for successful interaction within business settings. Taught in French.
**Prerequisite:** FREN301; or students who have taken courses with comparable content may contact the department.

**FREN311 Advanced Oral Expression (3 Credits)**
Linguistic and thematic analysis of written, audio, and visual texts. Focus on aural and oral skills. Some written assignments and evaluation.
**Prerequisite:** FREN250; or students who have taken courses with comparable content may contact the department.
**Restriction:** Must not be a native/fluent speaker of French.

**FREN312 France Today (3 Credits)**
Analysis and discussion of current events and institutions using various French media resources.
**Prerequisite:** FREN301; or students who have taken courses with comparable content may contact the department.
**Restriction:** Must not be a native/fluent speaker of French.

**FREN351 From Romanticism to the Age of Modernism and Beyond (3 Credits)**
A survey of the chief authors and major movements of French literature from Pre-Romanticism to the present.
**Prerequisite:** FREN301; or students who have taken courses with comparable content may contact the department.

**FREN352 From the Age of Epic and Romance to the Enlightenment (3 Credits)**
A survey of the chief authors and major movements of French literature from the Middle Ages to the end of the 18th century.
**Prerequisite:** FREN301; or students who have taken courses with comparable content may contact the department.

**FREN369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**FREN386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Junior standing or higher.

**FREN387 Critical Writing on France and the French-Speaking World (3 Credits)**
Intensive writing course based on focused study of issues and concerns drawn from French and Francophone literatures, films, and cultures. Elements of style, review of grammar. Taught in French.
**Prerequisite:** FREN301.
**Restriction:** Not open to Native speakers.

**FREN388 Language House Colloquium (1 Credit)**
The Language House Colloquium is a one-credit course for students residing in the Language House Immersion Program. The course focuses on the further development of skills in the target language and the acquiring of cultural knowledge of the countries that speak the target language. The course is designed to supplement the learning that takes place on a daily basis in the Language House program.
**Restriction:** Must be a resident of Language House.
**Repeatable to:** 4 credits.

**FREN399 Directed Study in French (1-3 Credits)**
Advanced undergraduates develop syllabus, reading list, and course requirements with interested faculty member. Designed for in-depth study of material not offered in regular courses or as expansion of course material. To be planned during semester preceding registration.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 3 credits.

**FREN407 History of the French Language (3 Credits)**
Evolution of the French language from Latin to modern French. Taught in French.
**Prerequisite:** FREN351 or FREN352; or permission of ARHU-French & Italian Languages & Literatures department.

**FREN421 Francophone African Film (3 Credits)**
Imaginary and Memory in the reality of Francophone African Film from 1960-present. Taught in English.
**Cross-listed with:** CINE421.
**Credit Only Granted for:** FREN421, CINE421 or FILM421.
**Formerly:** FILM421.

**FREN423 Women and French Cinema (3 Credits)**
Cultural identity, social boundaries and gender roles in French film as well as introduction to film textual analysis and diverse film theories (semiotics, film and psychoanalysis, feminist film theory, structuralism, narratology, spectatorship and cultural studies). Taught in French.
**Cross-listed with:** CINE423.
**Credit Only Granted for:** FREN423, CINE423 or FILM423.
**Formerly:** FILM423.

**FREN429 Studies in French Literature and Culture of the Renaissance (3 Credits)**
Selected topics in French literature of the Renaissance.
**Prerequisite:** FREN387; and (FREN351 or FREN352). Or permission of ARHU-French & Italian Languages & Literatures department.
**Repeatable to:** 6 credits if content differs.

**FREN439 Studies in 17th Century French Literature and Culture (3 Credits)**
Selected topics in seventeenth-century French literature.
**Prerequisite:** FREN387; and (FREN351 or FREN352). Or permission of ARHU-French & Italian Languages & Literatures department.
**Repeatable to:** 6 credits if content differs.

**FREN449 Studies in 18th Century French Literature and Culture (3 Credits)**
Selected topics in eighteenth-century French literature.
**Prerequisite:** FREN387; and (FREN351 or FREN352). Or permission of ARHU-French & Italian Languages & Literatures department.
**Repeatable to:** 6 credits if content differs.

**FREN459 Studies in 19th Century French Literature and Culture (3 Credits)**
Selected topics in nineteenth-century French literature.
**Prerequisite:** FREN387; and (FREN351 or FREN352). Or permission of ARHU-French & Italian Languages & Literatures department.
**Repeatable to:** 6 credits if content differs.

**FREN469 Studies in 20th Century French Literature and Culture (3 Credits)**
Selected topics in twentieth-century French literature.
**Prerequisite:** FREN387; and (FREN351 or FREN352). Or permission of ARHU-French & Italian Languages & Literatures department.
**Repeatable to:** 6 credits if content differs.

**FREN472 The Construction of French Identity II: From the Revolution to the Early Twentieth Century (3 Credits)**
French life, customs, culture, traditions (1750 to the early twentieth century).
**Prerequisite:** FREN387; or permission of ARHU-French & Italian Languages & Literatures department.

**FREN474 Contemporary France: A Sociocritical Approach (3 Credits)**
A sociocritical approach to understanding modern French society through the study of print and non-print media documents (autobiography, film, and paraliterature), with reference to the Francophone world. Taught in French.
**Prerequisite:** FREN387; or permission of ARHU-French & Italian Languages & Literatures department.
**Recommended:** FREN473.

**FREN478 Themes and Movements of French Literature in Translation (3 Credits)**
Studies treatments of thematic problems or literary or historical movements in French literature. Topic to be determined each semester. Taught in English.

**FREN479 Masterworks of French Literature in Translation (3 Credits)**
Treats the works of one or more major French writers. Topic to be determined each semester. Taught in English.

**FREN480 French Cinema: A Cultural Approach (in Translation) (3 Credits)**
A study of French culture, civilization, and literature through the medium of film. Taught in English.
**Cross-listed with:** CINE420.
**Credit Only Granted for:** FREN480, CINE420 or FILM420.
**Formerly:** FILM420.

**FREN482 Gender and Ethnicity in Modern French Literature (3 Credits)**
Literature by women writers of France and other French speaking areas with a focus on the relationship between gender, ethnicity and writing. Taught in English.

**FREN488 Special Topics in Francophone Studies (3 Credits)**
Topic and language of instruction to be announced when offered.
**Repeatable to:** 9 credits if content differs.

**FREN489 Seminar in Themes or Movements of French Literature (3 Credits)**
Seminar on selected themes or movements of French literature.
**Prerequisite:** FREN387; and (FREN351 or FREN352). Or permission of ARHU-French & Italian Languages & Literatures department.
**Repeatable to:** 6 credits if content differs.

**FREN495 Honors Thesis Research (3 Credits)**
The writing of a paper under the direction of a professor in this department and an oral examination. Required to fulfill the departmental honors requirement.
**Restriction:** Must be admitted to the departmental honors program.

**FREN498 Special Topics in French Literature (3 Credits)**
Selected topics in French literature.
**Prerequisite:** FREN387; and (FREN351 or FREN352). Or permission of ARHU-French & Italian Languages & Literatures department.
**Repeatable to:** 6 credits if content differs.

**FREN499 Special Topics in French Studies (3 Credits)**
An aspect of French studies, the specific topic to be announced each time the course is offered.
**Prerequisite:** FREN387; or permission of ARHU-French & Italian Languages & Literatures department.
**Repeatable to:** 6 credits if content differs.

# GEMS - Gemstone

**GEMS100 Freshman Honors Colloquium: Introduction to Gemstone (1 Credit)**
Orienting new Gemstone students to the university and to the program through a variety of team building activities, resources, and skill exploration exercises. Students will also examine and discuss areas such as liberal education, diversity, service, arts, current events, academic integrity, and leadership style.
**Restriction:** Must be in the Gemstone program.

**GEMS102 Research Topic Exploration and Team Formation (1 Credit)**
Under the guidance of staff and visiting speakers, students will develop research topics that they will pursue for the remainder of their participation in the Gemstone program, and form into interdisciplinary teams around these topics.
**Restriction:** Must be in the Gemstone program.

**GEMS104 Topics in Science, Technology and Society (STS) (3 Credits)**
An examination of how cultural, economic, political and social forces shape scientific and technological systems and, conversely, how scientific and technological systems have affected the culture, economies, organization and politics of societies. Students in the course will form small teams to carry out semester-long research on socio/technical topics related to the course theme chosen for that specific semester.
**Prerequisite:** GEMS100.
**Restriction:** Must be in the Gemstone program.

**GEMS202 Team Dynamics and Research Methodology (2 Credits)**
This experiential course is designed to foster an understanding of effective team dynamics and basic research methodology. It will teach skills applicable to Gemstone team research and the writing of a team thesis. Upperclass Gemstone students serve as discussion facilitators. Students participate in their Gemstone teams and develop a draft of their team thesis proposal.
**Prerequisite:** GEMS100, GEMS102, and GEMS104.
**Corequisite:** GEMS296.
**Restriction:** Must be in the Gemstone program; and sophomore standing or higher.

**GEMS208 Special Topics in Leadership and Team Development (1-3 Credits)**
Principles, methods and types of leadership and team development with an emphasis on group discussion and decision making. Reading, discussion and exploration of the basic team concept, communications for winning scenarios, goal setting, problem solving, conflict resolution and research methods.
**Restriction:** Must be in the Gemstone program.

**GEMS296 Team Project Seminar I (1 Credit)**
This is the first of six seminars during which Gemstone students carry out multidisciplinary research with the guidance of a faculty mentor. The teams develop their working relationship, start their literature search, define their research question, and set short & long term goals.
**Prerequisite:** GEMS100, GEMS102, and GEMS104.
**Corequisite:** GEMS202.
**Restriction:** Must be in the Gemstone program with sophomore standing in a research team.

**GEMS297 Team Project Seminar II (2 Credits)**
This is the second of six seminars during which Gemstone students carry out interdisciplinary research with the guidance of a faculty mentor. The team develops its website, prepares and presents its research proposal and begins its research project.
**Restriction:** Must be in the Gemstone program with sophomore standing in a research team.

**GEMS396 Team Project Seminar III (2 Credits)**
This is the third of six seminars during which Gemstone students carry out interdisciplinary research with the guidance of a faculty mentor. The team presents its progress at the Gemstone Colloquia.
**Prerequisite:** GEMS297.
**Restriction:** Must be in the Gemstone program with junior standing in a research team.

**GEMS397 Team Project Seminar IV (2 Credits)**
This is the fourth of six seminars during which Gemstone students carry out interdisciplinary research with the guidance of a faculty mentor. The team further develops its website. Also they will prepare and present the team project in the poster session of Undergraduate Research Day.
**Prerequisite:** GEMS396.
**Restriction:** Must be in the Gemstone program with junior standing in a research team.

**GEMS496 Project Writing Seminar (2 Credits)**
This is the fifth of six seminars during which Gemstone students carry out research with the guidance of a faculty mentor. The team finishes the analysis of their data and writes and edits its team thesis.
**Prerequisite:** GEMS397.
**Restriction:** Must be in the Gemstone program.

**GEMS497 Team Thesis Defense (2 Credits)**
Gemstone teams will complete the team research project and thesis. The team will formally present the thesis to experts in the area of interest at a Team Thesis Conference before final submission.
**Prerequisite:** GEMS396.
**Restriction:** Must be in the Gemstone program.

# GEOG - Geographical Sciences

**GEOG100 Introduction to Geography (3 Credits)**
An introduction to the broad field of geography as it is applicable to the general education student. The course presents the basic rationale of variations in human occupancy of the earth and stresses geographic concepts relevant to understanding world, regional and local issues.

**GEOG110 The World Today: Global Perspectives (3 Credits)**
The most critical issue facing the world today is the sustainability of both human and physical systems in the 21st century. This class uses the context of regions of the world to explore the 21st century issues of climate change, development, politics, economy, and demography. Each region will be used to highlight aspects of sustainability.

**GEOG130 Development Geography: Environmental & Social Justice (3 Credits)**
The geography of economic, social, and environmental well-being and inequality. The course will provide an integrated perspective on the causes, interconnections, and consequences across time and space of, among others, globalization, climate change, poverty, employment, migration and urban growth, agricultural productivity, rural development, policies and international trade. Portraits of selected countries and regions will be developed.

**GEOG140 Natural Disasters: Earthquakes, Floods, and Fires (3 Credits)**
Catastrophic Environmental Events (CCE) that are becoming more common in this time of global environmental change and it is essential that today's students be equipped with the knowledge and skills to be leaders as we, as a society, understand the upheaval that these CCEs are causing. Students will examine how CEEs shape human society and ecosystem from the interdisciplinary perspective afforded by the field of Geography. Students will use the latest geographic science concepts and techniques in exploring these events. Using satellite imagery they will gain a multi-scale perspective of the ecological and societal aspects of the events.

**GEOG156 How NASA Sees the Earth (3 Credits)**
The world of Earth science data is complex and can be overwhelming with a wide range of data sources and formats, hefty downloads and the need for complicated analytical tools. To make use of enormous volumes of available data and geoinformation products, one has to know where and how to search and obtain the data, how to analyze the data, and how to extract useful information and knowledge. In this course, you will learn about the state-of-the-art Web-based tools that allow you to efficiently display and analyze a large number of datasets in a way many professionals working in the Earth science domain would. You will learn how to visualize multiple Earth science datasets produced by NASA in a variety of ways directly on the Internet, without the need to download, manage and store them. Students will be introduced to comprehensive functions to analyze the data and generate customized maps, animations, multi-variable correlations, regional subsetting, etc.
**Cross-listed with:** INST156.
**Credit Only Granted for:** GEOG156 or INST156.

**GEOG158 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**GEOG170 Mapping our Digital World (3 Credits)**
Introduction to technical methods used in gathering, analyzing, and mapping geospatial information for applications such as urban mobility, environmental monitoring, situational awareness, and disaster management. Topics include Geographic Information Systems (GIS), cartography, map projections, satellite and airborne remote sensing, the global positioning system (GPS), and introductory statistics and probability. The course is a gateway to more advanced technical classes in geospatial science.

**GEOG172 Earth From Space (3 Credits)**
Earth observations from space enable the mapping and monitoring of our changing planet. This survey course reviews current observational capabilities and examines scientific applications in quantifying global environmental change. Drivers and outcomes of key dynamics will be illustrated and discussed, including sea and continental ice loss, deforestation, ocean warming, urbanization, agricultural expansion and intensification, and vegetation response to climate change.

**GEOG198 Selected Topics in Geography (1-3 Credits)**
Readings and discussion on selected topics in the field of geography or GIS
**Repeatable to:** 12 credits if content differs.

**GEOG201 Geography of Environmental Systems (3 Credits)**
A systematic introduction to the processes and associated forms of the atmosphere and earth's surfaces emphasizing the interaction between climatology, hydrology and geomorphology.

**GEOG202 Introduction to Human Geography (3 Credits)**
Introduction to what geographers do and how they do it. Systematic study of issues regarding social and cultural systems from a global to a local scale. Looks at the distribution of these variables and answers the question "Why here, and not there"?

**GEOG211 Geography of Environmental Systems Laboratory (1 Credit)**
A laboratory course to accompany GEOG 201. Analysis of the components of the earth's energy balance using basic instrumentation; weather map interpretation; soil analysis; the application of map and air photo interpretation techniques to landform analysis.
**Prerequisite:** Must have completed or be concurrently enrolled in GEOL120, GEOL100, or GEOG201.

**GEOG212 Career Planning for Geographical Sciences, GIS, and ENSP Majors (1 Credit)**
Increase student knowledge of professional development opportunities in Geographical Sciences through classroom activities and invited speakers, and to build awareness of career development tools and strategies.
**Restriction:** Must be in one of the following programs (Geography; GEOG-GIS & Computer Cartography).

**GEOG258 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**GEOG272 Introduction to Earth Observation Science (3 Credits)**
Concepts and principles of Earth observation and remote sensing in relation to photographic, thermal infrared and radar imaging. Methods of obtaining quantitative information from remotely-sensed images. Interpretation of remotely-sensed images emphasizing the study of spatial and environmental relationships.
**Credit Only Granted for:** GEOG272 or GEOG372.
**Formerly:** GEOG372.

**GEOG276 Principles of Python Programming and Geocomputing (3 Credits)**
Introduces conceptual and practical aspects of scientific computing using the Python programming language. The main focus is on developing proficiency for the basic elements of the development environment, foundational syntax including variables, logical operators, looping, conditional statements, nesting, and common programming patterns for mathematical and textual computing. In addition, essential data structures and functionality for scientific computing, such as arrays, dataframes, and data visualization will be introduced. Throughout the course, students will also become exposed to various applications in the domain of the social and environmental sciences.

**GEOG298 Special Topics in Geography (3 Credits)**
An introductory course dealing with special topics in geography.
**Repeatable to:** 6 credits if content differs.

**GEOG301 Advanced Geographical Environmental Systems (3 Credits)**
This course will provide the students with an overview of the key elements of physical geography, including biogeography (factors and processes that control the geographical distributions of plants and animals, climatology (processes associated with controlling variations in weather and climate), and geomorphology (factors and processes that control changes to the physical structure of the earth surface in relation to geological structures).
**Prerequisite:** GEOG201 and GEOG211.
**Credit Only Granted for:** GEOG398B or GEOG301.
**Formerly:** GEOG398B.

**GEOG306 Introduction to Quantitative Methods for the Geographical Environmental Sciences (3 Credits)**
Essentials in the quantitative analysis of spatial and other data, with a particular emphasis on statistics and programming. Topics include data display, data description and summary, statistical inference and significance tests, analysis of variance, correlation, regression, and some advanced concepts, such as matrix methods, principal component analysis, and spatial statistics. Students will develop expertise in data analysis using advanced statistical software.

**GEOG328 Topics in Regional Geography (3 Credits)**
Selected topics in regional geography.
**Repeatable to:** 6 credits if content differs.

**GEOG330 As the World Turns: Society and Sustainability in a Time of Great Change (3 Credits)**
Cultural geography course on society and sustainability. Culture is the basic building block that is key to sustainability of societies. Course will cover sustainability of societies on different scales, examining local, regional, and worldwide issues. Sustainability will be examined as a key element of environmental sustainability. How societies adjust to rapid world change will be examined as a positive and/or negative factor in sustainability.
**Credit Only Granted for:** GEOG330, GEOG360, or GEOG362.
**Formerly:** GEOG362.

**GEOG331 Introduction to Human Dimensions of Global Change (3 Credits)**
Introduction to global-scale interrelationship between human beings and the environment. The development of global issues including but not limited to the environment, food, energy, technology, population, and policy.
**Prerequisite:** ANTH220, ANTH260, GEOG202, or GEOG201; or permission of BSOS-Geography department.
**Credit Only Granted for:** GEOG331 or GEOG361.
**Formerly:** GEOG361.

**GEOG332 Economic Geography (3 Credits)**
Principles of managing scarce resources in a world where everyone faces tradeoffs across both time and space. Focuses on the relationship between globalization processes and changing patterns of locational advantages, production, trade, population, socioeconomic and environmental grace and sustainability.
**Credit Only Granted for:** GEOG203, GEOG303, or GEOG332.
**Formerly:** GEOG303.

**GEOG333 The Social Geography of Metropolitan Areas in Global Perspective (3 Credits)**
A socio-spatial approach to human interaction within the urban environments: ways people perceive, define, behave in, and structure world cities and metropolitan areas. Cultural and social differences define spatial patterns of social activities which further define distinctions in distribution and interaction of people and their social institutions.
**Prerequisite:** GEOG201 and GEOG202; or permission of BSOS-Geography department.
**Credit Only Granted for:** GEOG456 or GEOG333.
**Formerly:** GEOG456.

**GEOG340 Geomorphology (3 Credits)**
Survey of landform types and role of processes in their generation. Frequency of occurrence and implications for land utilization. Emphasis on coastal, fluvial, and glacial landforms in different environmental settings. Landform regions of Maryland.

**GEOG346 Cycles in the Earth System (3 Credits)**
The Earth System operates through some fundamental cycles such as water, energy, and the Carbon Cycle. This course will build on GEOL/GEOG/AOSC123 starting with concept of feedbacks within the Earth System, global energy balance and the Greenhouse Effect. A brief introduction to the atmospheric and oceanic circulation will lead to the water cycle connecting the land, ocean, and atmosphere to the Earth System. Introduction to the Global carbon, nitrogen, and sulfur cycles will be followed by the concept of long-term climate regulation and short-term climate variability. The concepts of cycles, feedbacks, forcings, and responses in the Earth System will be applied to Global Warming and Ozone Depletion.
**Prerequisite:** GEOG123, AOSC123, GEOL123, or MATH140; or permission of CMNS-Geology department.
**Recommended:** PHYS171, PHYS141, PHYS161, or MATH141. Cross-listed with GEOL346.
**Credit Only Granted for:** AOSC346, GEOG346, or GEOL346.

**GEOG358 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**GEOG371 Programming for Image Analysis (3 Credits)**
Introduces application programing interface (API) functions and image processing techniques for efficient processing of satellite images. The main programing language of the course is Python. The course will use a Geospatial Data Abstraction Library (GDAL) which provides a unified way of manipulating images incorporating geospatial information. For image processing, the course will use Python-based libraries such as scikit-image and OpenCV.
**Prerequisite:** GEOG276, GEOG306, and GEOG272.

**GEOG373 Geographic Information Systems (3 Credits)**
Characteristics and organization of geographic data; creation and use of digital geospatial databases; metadata; spatial data models for thematic mapping and map analysis; use of geographic information system in society, government, and business. Practical training with use of advanced software and geographic databases.

**GEOG376 Programming for Geospatial Analysis (3 Credits)**
Covers conceptual and practical aspects of geospatial data modeling and analysis techniques using the Python programming language. The main focus is on developing a solid understanding of the programmatic conventions needed to create, manipulate, and process geospatial data types, such as point, line, & polygon vectors, networks, trajectories, and space-time extensions. In addition, students will develop a proficiency in applying these data structures to perform automated geospatial analysis, such as GIS operations, agent-based models, and spatial statistics.
**Prerequisite:** GEOG276 and GEOG373; Must have completed or be concurrently enrolled in MATH120, MATH130, or MATH140; or must have completed MATH220.
**Recommended:** GEOG306.

**GEOG384 Internship in Geography I (3 Credits)**
Supervised field training to provide career experience. Introduction to professional level activities, demands, opportunities. Placement at a public agency, non-profit organization, or private firm. Participation requires application to the internship advisor in preceding semester.
**Prerequisite:** GEOG211, GEOG306, GEOG212, and GEOG201; and (ENGL393 or ENGL390).
**Restriction:** Must be in Geography program.

**GEOG385 Internship in Geography II (3 Credits)**
Supervised field training to provide career experience. Introduction to professional-level activities, demands, opportunities. Placement at a public agency, nonprofit organization, or private firm. Participation requires application to the internship advisor in preceding semester.
**Prerequisite:** GEOG211, GEOG306, GEOG212, and GEOG201; and must have completed a Junior (Professional) English course.
**Restriction:** Must be in Geography program.

**GEOG396 Honors Research (3 Credits)**
First course in the departmental honors sequence. Student development of a potential research topic under the guidance of a faculty advisor, culminating in a written and oral presentation of a research proposal.
**Restriction:** Permission of BSOS-Geography department; and senior standing or higher; and must be in Geography program.
**Formerly:** GEOG397.

**GEOG397 Honors Thesis (3 Credits)**
Second course in the departmental honors sequence. Student research under the auspices of a faculty advisor, culminating in a research paper to be defended orally before the geography honors committee.
**Prerequisite:** GEOG396.
**Restriction:** Must be in Geography program; and senior standing or higher.
**Formerly:** GEOG399.

**GEOG398 Special Topics in Geography (1-3 Credits)**
An introductory course dealing with special topics in geography.
**Restriction:** Permission of BSOS-Geography department.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** GEOG298 or GEOG398.
**Formerly:** GEOG298.

**GEOG413 Migration: Latin America and the United States (3 Credits)**
Develops an understanding of the push and pull factors that have contributed to human mobility (migration) that has transformed the Americas. The class is divided in two parts: immigration and emigration from Latin American and Latin America migration to the United States. We will be interested in studying the migration shifts that have occurred in Latin America and the theories that help explain them. The themes that will be addressed are the history of migration with Latin America and to North America, the impact of this migration on both sending and receiving countries, and the various policy strategies and issues concerning migration.
**Prerequisite:** GEOG313; or permission of BSOS-Geography department.
**Recommended:** HIST250; or USLT201; or LASC234.
**Credit Only Granted for:** GEOG413, or GEOG498M.
**Formerly:** GEOG498M.

**GEOG415 Land Use, Climate Change, and Sustainability (3 Credits)**
The issues of climate change and land use change as two interlinked global and regional environmental issues and their implications for society and resource use are explored.
**Prerequisite:** GEOG306; or permission of BSOS-Geography department.
**Recommended:** GEOG340; or GEOG342; or GEOG331. Or GEOG201; and GEOG211.
**Credit Only Granted for:** GEOG415 or GEOG498D.
**Formerly:** GEOG498D.

**GEOG416 Conceptualizing and Modeling Human-Environmental Interactions (3 Credits)**
Develops skills to carry out research that integrates environmental and economic aspects of sustainability by introducing extensively used quantitative tools for analyzing human-environmental interactions in the field of ecological economics. These include, e.g., index number calculations and decomposition analysis, Environmental Kuznets Curve (EKC), environmental input-output analysis and life-cycle analysis, and multi-criteria decisions aid (MCDA). Students will need laptops to run models during class.
**Prerequisite:** Permission of BSOS-Geography department.
**Corequisite:** MATH130, MATH140, or MATH120; or MATH220.

**GEOG417 Land Cover Characterization Using Multi-Spectral Remotely Sensed Data Sets (3 Credits)**
Students will be introduced to the image processing steps required for characterizing land cover extent and change. Key components of land cover characterization, including image interpretation, algorithm implementation, feature space selection, thematic output definition, and scripting will be discussed and implemented.
**Prerequisite:** GEOG272 and GEOG306; or permission of BSOS-Geography department.
**Jointly offered with:** GEOG617.
**Credit Only Granted for:** GEOG417 or GEOG617.

**GEOG418 Field and Laboratory Techniques in Environmental Science (1-3 Credits)**
Lecture and laboratory learning each week. A variable credit course that introduces field and laboratory analyses in environmental science. Individual learning contract are developed with instructor.
**Restriction:** Permission of BSOS-Geography department.
**Credit Only Granted for:** GEOG418 or GEOG448.
**Formerly:** GEOG448.

**GEOG421 Changing Geographies of China (3 Credits)**
Covers physical geography, history, and economic and political systems of the world's most populous country. The major focus will be on geographical issues in China's contemporary development: agriculture, population, urbanization, resource and energy, and environment.
**Prerequisite:** Permission of BSOS-Geography department. Or GEOG202; and GEOG201; and (GEOG435, GEOG333, or GEOG332).
**Recommended:** GEOG130; or GEOG140.
**Credit Only Granted for:** GEOG328B or GEOG421.
**Formerly:** GEOG328B.

**GEOG422 Changing Geographies of Sub-Saharan Africa (3 Credits)**
Students will develop an understanding of the geographic contexts of SubSaharan Africa, including an overview of the physical, bioclimatic, historical, cultural, political, demographic, health and economic geographies of Sub-Saharan Africa. Students will fill in the map of Africa by studying the spatial distribution within each of these geographic domains. In addition to an overview of geography South of the Sahara, the Congo will be taken as a more intensive case study through additional readings, lectures and discussions.
**Prerequisite:** Permission of BSOS-Geography department. Or GEOG201; and GEOG202; and (GEOG335 or GEOG333).
**Recommended:** GEOG130 or GEOG110.
**Credit Only Granted for:** GEOG328C, GEOG422.
**Formerly:** GEOG328C.

**GEOG423 Latin America (3 Credits)**
A geography of Latin America and the Caribbean in the contemporary world: political and cultural regions, population and natural resource distribution, economic and social development, poverty, crime, urbanization, migration trends, and natural disasters.
**Prerequisite:** Permission of BSOS-Geography department. Or GEOG201 and GEOG202; and (GEOG332, GEOG435, or GEOG333).
**Recommended:** GEOG130 and GEOG110.
**Credit Only Granted for:** GEOG313 or GEOG423.
**Formerly:** GEOG313.

**GEOG431 Culture and Natural Resource Management (3 Credits)**
Basic issues concerning the natural history of humans from the perspective of the geographer. Basic components of selected behavioral and natural systems, their evolution and adaptation, and survival strategies.
**Credit Only Granted for:** GEOG421 or GEOG431.
**Formerly:** GEOG421.

**GEOG432 Spatial Econometrics (3 Credits)**
An introduction to modern econometric techniques in general and spatial econometrics in particular, using the popular open source statistical computer language R. A focus on using statistical computing to produce analytical reports for real-world applications, research papers, and dissertations.
**Prerequisite:** Permission of BSOS-Geography department.
**Jointly offered with:** GEOG732.
**Credit Only Granted for:** GEOG432 or GEOG732.

**GEOG438 Seminar in Human Geography (3 Credits)**
Selected topics in human geography.
**Recommended:** GEOG201; or GEOG211.
**Restriction:** Permission of BSOS-Geography department.
**Repeatable to:** 6 credits if content differs.

**GEOG440 Polar Remote Sensing (3 Credits)**
The harsh environment of the vast polar regions makes them some of the most inaccessible places on Earth. With widespread environmental change already underway, satellite remote sensing provides the only means by which to obtain year-round observations of the polar climate system. The objective of this course is to provide students with an overview of polar remote sensing techniques, including the physical principles of active and passive sensors, orbits, electromagnetic radiation, atmospheric transmission, calibration and validation. We will focus on measurements of the polar oceans, sea ice, glaciers, ice sheets, snow and permafrost, and examine the response of the cryosphere to climate change.
**Prerequisite:** PHYS171 or PHYS161; and AOSC401 or GEOG301; or with permission of instructor.
**Cross-listed with:** AOSC440.
**Jointly offered with:** AOSC642.
**Credit Only Granted for:** AOSC440, GEOG440, AOSC642, or GEOG640.

**GEOG441 The Coastal Ocean (3 Credits)**
Introduction to coastal oceanography, focusing on the physical, biological, and geological aspects of ocean areqs on the inner continental shelves. Wave, currents, and tidal dynamics of bays, open coast, estuaries, and deltas. Sedimentary environments of major coastal types. Ecology and biogeochemical relationships, including benthic and planktonic characteristics. Coastal evolution with sea level rise. Human impacts: eutrophication, modification of sedimentation. The coastal future: rising sea level, hypoxia, and increased storminess.
**Prerequisite:** GEOG140; or students who have taken courses with comparable content may contact the department; or permission of BSOS-Geography department.
**Credit Only Granted for:** GEOG441 or GEOG498C.
**Formerly:** GEOG498C.

**GEOG442 Biogeography and Environmental Change (3 Credits)**
Biogeographical topics of global significance, including a consideration of measurement techniques, and both descriptive and mechanistic modeling. Topics may include: scale in biogeography, biodiversity, carbon geography, climate and vegetation, interannual variability in the biosphere, land cover, global biospheric responses to climate change, NASA's Mission to Planet Earth and Earth Observation System. The class focuses on both natural and athropogenic controls, impacts of biography on climate and ecosystem services and different methods in biogeography.
**Prerequisite:** GEOG301. And GEOG201 and GEOG211; or permission of BSOS-Geography department. Jointly offered with GEOG642.
**Credit Only Granted for:** GEOG642, GEOG442, GEOG447, or GEOG484.
**Formerly:** GEOG4 47.

**GEOG458 Special Topics in Study Abroad IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**GEOG461 Machine Learning for Computational Earth Observation Science (CEOS) (3 Credits)**
Provides an introduction to machine learning methods and models with an emphasis on Earth observation. Topics will include supervised (decision trees, random forest, neural networks, support vector machine, Gaussian process and ensemble techniques), and unsupervised techniques (clustering/segmentation, dimension reduction, multi-dimensional data visualization). The course will highlight the state-of-the-art deep learning models; object-based versus pixel-based image classification; how to deal with missing data and non-uniform coverage of data; and large scale land cover land use mapping from heterogenous satellite data. Practical part will include satellite image classification by applying classification models and biophysical parameters retrieval by applying regression models.
**Prerequisite:** GEOG371.

**GEOG470 Algorithms for Geospatial Computing (3 Credits)**
An introduction to fundamental geospatial objects and geometric algorithms for spatio-temporal data processing and analysis. Point data representation and analysis: spatial data models and data structures, algorithms for spatial queries, point clustering algorithms. Surface and scalar field modeling, such as terrains: raster and triangle-based models (TINs), algorithms for building and querying TINs. Algorithms for natural and urban terrain analysis: morphology computation and visibility analysis. Applications to processing and analysis of LiDAR (Light Detection And Ranging) data in the context of terrain reconstruction, urban modeling, forest management and bathymetry reconstruction for coastal data management. Road network computation and analysis: algorithms for route computation in road networks, and for road network reconstruction from GPS and satellite data.
**Prerequisite:** GEOG276; or a minimum grade of C- in CMSC330 and CMSC351; or permission of instructor.
**Cross-listed with:** CMSC401.
**Jointly offered with:** GEOG770.
**Credit Only Granted for:** CMSC498Q, CMSC401, CMSC788I, GEOG470, GEOG498I, GEOG770, or GEOG788I.
**Formerly:** GEOG498I.

**GEOG471 Technologies for Computational Earth Observations (3 Credits)**
An introduction and exploration of cutting-edge novel remote sensing datasets and their associated science uses and applications. We present several modules focused on different technologies (multispectral, lidar, radar, thermal), and for each have both hands-on lab assignments, lectures, and applications case studies. Data fusion techniques, and common analysis and processing pitfalls are presented and discussed. Hands-on computer labs allow students to explore each dataset via online tutorials. After all datasets are presented, students download their own datasets in an area of interest to them, and work toward a unique student-driven project for presentation to the class. The sky is literally the limit in this interactive course which provides a research experience opportunity for students in a supportive atmosphere.
**Prerequisite:** GEOG371 or permission of instructor.

**GEOG472 Remote Sensing: Digital Processing and Analysis (3 Credits)**
Digital image processing and analysis applied to satellite and aircraft land remote sensing data. Consideration is given to image preprocessing techniques including radiometric calibration, geometric registration as well as atmospheric correction. Analysis methods include digital image exploration, feature extraction, thematic classification, change detection, and biophysical characterization. An application-oriented course project will be completed through the self-guided computer labs.
**Prerequisite:** GEOG272 and GEOG306; or students who have taken courses with comparable content may contact the department.

**GEOG473 Geographic Information Systems and Spatial Analysis (3 Credits)**
Analytical uses of geographic information systems; data models for building geographic data bases; types of geographic data and spatial problems; practical experience using advanced software for thematic domains such as terrain analysis, land suitability modeling, demographic analysis, and transportation studies.
**Prerequisite:** GEOG306 and GEOG373; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** GEOG473 or GEOG482.
**Formerly:** GEOG482.

**GEOG475 Geographic Visualization and Digital Mapping (3 Credits)**
An overview of the basic concepts and techniques that underlie digital map making and the broader field of geographic visualization for intermediate GIS users. This includes the use of color, map symbolization, map layout, and also the contribution to geographic visualization from the fields of scientific visualization, information visualization, and cognition. Fundamentals of dynamic map design and web mapping will be introduced through the use of animated and interactive maps.
**Prerequisite:** GEOG373 and GEOG306.

**GEOG476 Object-Oriented Computer Programming for GIS (3 Credits)**
Expands on conceptual and practical aspects of programming for geographic applications. The main focus of this course is to provide students more advanced programming in object oriented programming languages (i.e. Python). In addition, students will develop a proficiency in applying these advanced programming principles to manipulating spatial data sources within the Geographic Information Systems (GIS).
**Prerequisite:** GEOG373 and GEOG376; or permission of BSOS-Geography department. And must have completed MATH220; or must have completed or be concurrently enrolled in MATH120, MATH130, or MATH140.
**Restriction:** Must be in Geography program; or must be in GIS minor.

**GEOG498 Topical Investigations (1-3 Credits)**
Independent study under individual guidance.
**Prerequisite:** Restricted to advanced undergraduate students; and 24 credits in GEOG courses. Or restricted to graduate students.
**Repeatable to:** 6 credits if content differs.

# GEOL - Geology

**GEOL100 Physical Geology (3 Credits)**
A general survey of the rocks and minerals composing the earth, its surface features and the agents that form them, and the dynamic forces of plate tectonics.
**Credit Only Granted for:** GEOL100 or GEOL120.
**Additional Information:** CORE Distributive Studies Physical Science Laboratory Course only when taken concurrently with GEOL 110.

**GEOL102 Historical Geology (4 Credits)**
Earth's history as revealed through the principles of stratigraphy and the processes of physical geology. Emphasis on formations and geologic development of the North American continent.
**Prerequisite:** GEOL120 or GEOL100; and GEOL110. Or permission of CMNS-Geology department.

**GEOL104 Dinosaurs: A Natural History (3 Credits)**
Dinosaurs, their evolution, and our understanding of their fossil record. Students will examine the geologic record and the tools used by paleontologists to determine: geologic ages and ancient environments; evolutionary history and extinctions; dinosaurian biology and behavior; and their survival as birds. Mechanisms of global change ranging from plate tectonics to asteroid impact will be discussed.

**GEOL110 Physical Geology Laboratory (1 Credit)**
The basic materials and tools of physical geology stressing familiarization with rocks and minerals and the use of maps in geologic interpretations.
**Prerequisite:** Must have completed or be concurrently enrolled in GEOL120 or GEOL100.
**Additional Information:** CORE Distributive Studies Physical Science Laboratory Course only when taken concurrently with GEOL 100.

**GEOL120 Environmental Geology (3 Credits)**
A review of geologic factors underlying many environmental problems and the interactions between population and physical environment: geologic hazards, land-use planning, conservation, mineral resources, waste disposal, land reclamation, and the geologic aspects of health and disease. The course is aimed at lower division students in education and liberal arts, and should be useful to any student concerned with geologic perspectives of environmental problems.
**Credit Only Granted for:** GEOL100 or GEOL120.

**GEOL123 Causes and Consequences of Global Change (3 Credits)**
Study of the major components of Earth's climate system and climate change history. Discussion of 21st century climate change prediction, mitigation and adaptation efforts.
**Cross-listed with:** AOSC123.
**Credit Only Granted for:** AOSC123, GEOG123, or GEOL123.

**GEOL124 Evolution of Life and Environment on Planet Earth (3 Credits)**
An exploration of how life has shaped Earth's physical environments, both in the contemporary Earth and over the long course of Earth history. Topics range from evidence for the origin and diversification of life and its impact on Earth environments to the mind-set and methods of the scientists who interpret it, and what those methods tell us about future interactions between life and the environment, both on Earth and in the Solar System.

**GEOL200 Earth's Fury: Earthquakes, Volcanoes, and Tsunami (3 Credits)**
Earthquakes, volcanic eruptions, and tsunami frequently remind us of the dangers associated with living on a constantly changing planet. How do people prepare for these rare but dramatic events? Student will study the science behind earthquakes and volcanoes, how it guides monitoring, forecasting, prevention, and response, and the cultural and ethical aspects of these events.

**GEOL204 Dinosaurs, Early Humans, Ancestors, and Evolution; The Fossil Record of Vanished Worlds of the Prehistoric Past (3 Credits)**
What good is the fossil record? What relevance or insights might the remains of ancient living things have for our modern world? This course examines how the record of ancient life was made, and how we use diverse scientific techniques to reveal the information it contains. We will look at how the various inhabitants of our planet changed through time, and how different ecosystems such as reefs, forests, and grasslands were assembled. We will see how our own species came to be, and of our spread across the world from our ancestral home in Africa. We'll examine how the fossil record contains evidence of climate changes and extinction events far exceeding what we are currently experiencing, and how we can use these as warnings for our future. We'll address who are the owners and stakeholders in the evidence of the fossil world. Students will learn how to read and interpret the primary scientific literature, and how to present scientific information to others through various media.

**GEOL212 Planetary Geology (3 Credits)**
An examination of the geologic and geochemical processes at work in the solar system from the perspectives supplied by space age exploration of the planets and other solar system bodies.
**Credit Only Granted for:** ASTR330 or GEOL212.

**GEOL224 Observations and Measurements of the Natural World (3 Credits)**
A scientific research team experience focused on evaluating environmental controls on water quality in urbanized streams of College Park. Training in field, laboratory, and digital visualization techniques to gain hands on knowledge of the scientific method through detailed observations, measurements, manipulations, and interpretations of data gathered during the course.

**GEOL288 Field Studies I (1 Credit)**
Examination and investigation of Earth Science phenomena in the field, particularly geology. Involves fieldwork of one week or longer duration, which work normally includes both observation and data collection. Particular programs may require certain prerequisites. Permission of Instructor is required. Special fees may be necessary.
**Repeatable to:** 3 credits if content differs.

**GEOL322 Mineralogy (4 Credits)**
Basic mineralogy for geology majors. The principles of morphologic crystallography, crystal chemistry, and determinative mineralogy.
**Prerequisite:** GEOL120 or GEOL100; and GEOL110. And CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103.
**Restriction:** Permission of instructor is required for non-degree seeking students.

**GEOL329 Instructional Assistance Practicum (1-2 Credits)**
Undergraduate teaching assistantship in Geosciences. Individual instruction course. Contact department or instructor to obtain section number.

**GEOL331 Principles of Paleontology (4 Credits)**
A review of the theory, principles, and applications of Paleontology. A systematic overview of the morphology, evolution, and relationships of the major fossil-producing taxa.
**Prerequisite:** GEOL102; or (BSCI207 or BSCI392); or permission of CMNS-Geology department.
**Cross-listed with:** BSCI333.
**Restriction:** Permission of instructor is required of non-degree seeking students.
**Credit Only Granted for:** GEOL331 or BSCI333.

**GEOL340 Geomorphology (4 Credits)**
Analysis of landforms, organized on the basis of the geologic processes that have operated during the late Cenozoic. Constructional and erosional landforms related to physical systems operating on geologic structures through time.
**Prerequisite:** GEOL120 or GEOL100.
**Restriction:** Permission of instructor is required of non-degree seeking students.

**GEOL341 Structural Geology (4 Credits)**
Study of the deformation of Earth's lithosphere, especially stress, rheology, strain, and the origin and significance of structural features. Development of 3-dimensional thinking through drafting and drawing of structures, construction of geologic maps and cross-sections, and stereographic and orthographic representation of structures. Improvement of scientific writing. Two weekend field trips.
**Prerequisite:** GEOL120 or GEOL100; and GEOL102; and GEOL110. Or permission of CMNS-Geology department.
**Restriction:** Permission of instructor is required of non-degree seeking students.

**GEOL342 Sedimentation and Stratigraphy (4 Credits)**
Description, origin, and distribution of sediments and sedimentary rocks.
**Prerequisite:** GEOL120 or GEOL100; and GEOL110; and GEOL322. And CHEM103; or (CHEM131 and CHEM132); or (CHEM135 and CHEM136).
**Restriction:** Permission of instructor is required of non-degree-seeking students.

**GEOL346 Cycles in the Earth System (3 Credits)**
The Earth System operates through some fundamental cycles such as water, energy, and the Carbon Cycle. This course will build on GEOL/GEOG/AOSC123 starting with concept of feedbacks within the Earth System, global energy balance and the Greenhouse Effect. A brief introduction to the atmospheric and oceanic circulation will lead to the water cycle connecting the land, ocean, and atmosphere to the Earth System. Introduction to the Global carbon, nitrogen, and sulfur cycles will be followed by the concept of long-term climate regulation and short-term climate variability. The concepts of cycles, feedbacks, forcings, and responses in the Earth System will be applied to Global Warming and Ozone Depletion.
**Prerequisite:** MATH140; and (GEOG123, AOSC123, or GEOL123). Or permission of CMNS-Geology department.
**Recommended:** PHYS171, PHYS141, PHYS161, or MATH141.
**Restriction:** Non-degree-seeking students require the permission of the instructor. Cross-listed with GEOG346.
**Credit Only Granted for:** AOSC346, GEOG346, or GEOL346.

**GEOL351 Statistics for Geoscientists (3 Credits)**
Practical approach to basic statistics applied in the geosciences. Experimental design, elementary statistics and probability, sequence analysis, spatial analysis, linear regression, nonparametric statistics, bivariate, multivariate and principal components analysis of variance, hypothesis testing. Problem sets and participatory discussion of statistical applications in the current literature.
**Prerequisite:** MATH115.
**Restriction:** Non-degree-seeking students require the permission of the instructor.

**GEOL375 Introduction to the Blue Ocean (3 Credits)**
The global ocean is a major component of the Earth System that shapes life on earth, including our weather and climate. We explore the observation-based interdisciplinary science of oceanography, identifying its strong connections to related sciences like meteorology, and geography. We apply this developing understanding to environmental issues such as marine pollution, fish and fisheries, as well as to climate variability and to the changes to the marine environment that are resulting from steadily rising levels of atmospheric greenhouse gasses. Focusses include the biogeochemical and physical changes we can observe in the nearby Chesapeake Bay and the coastal waters of Eastern Shore, Maryland.
**Prerequisite:** MATH120 or higher.
**Recommended:** MATH121, MATH141, PHYS161, or PHYS171.
**Cross-listed with:** AOSC375.
**Credit Only Granted for:** AOSC375 or GEOL375.

**GEOL386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Permission of CMNS-Geology department.
**Restriction:** Junior standing or higher.

**GEOL388 Field Studies II (3 Credits)**
Examination and investigation of Earth Science phenomena in the field, particularly geology. Involves field work of one week or a longer duration, which would normally involve both observations and data collection, with associated classroom lectures and/or laboratory study, normally including additional analysis of collected observations and data. Particular programs may require certain prerequisites. Permission of instructor required. Special fees may be necessary.
**Restriction:** Non-degree-seeking students require the permission of the instructor.
**Repeatable to:** 6 credits if content differs.

**GEOL391 Biology of Extinct Animals (3 Credits)**
A survey of extinct animals that have few, if any, direct living descendants. The principles governing the functional design of animals will be used to infer life styles for extinct, and frequently bizarre, organisms.
**Prerequisite:** BSCI160 and BSCI161; or BSCI106.
**Cross-listed with:** BSCI392.
**Credit Only Granted for:** GEOL391 or BSCI392.

**GEOL392 Biology of Extinct Animals Laboratory (1 Credit)**
An overview of the techniques used in paleobiological reconstructions of extinct animals.
**Prerequisite:** Must have completed or be concurrently enrolled in BSCI392.
**Cross-listed with:** BSCI393.
**Credit Only Granted for:** GEOL392 or BSCI393.

**GEOL393 Geology Senior Thesis I: Proposal (3 Credits)**
The first semester of the two-semester Geology Senior Thesis. Emphasis is on developing a plan for original research in the geosciences and presenting that plan both in writing and in public presentations that adhere to geosciences professional standards.
**Prerequisite:** PHYS141 or (PHYS161 and PHYS174); and MATH141; and (CHEM131 and CHEM132) or (CHEM135 and CHEM136); and must have completed at least two upper-level geology courses and be concurrently enrolled in a third.
**Restriction:** Junior standing or higher; and must be in Geology program.

**GEOL394 Geology Senior Thesis II: Research (3 Credits)**
The second semester of the two-semester Geology Senior Thesis. Investigation of specific original research question in geosciences. Emphasis is on completion of original research proposed in GEOL393 and presentation of results both in writing and in public presentations that adhere to geosciences professional standards.
**Prerequisite:** GEOL393; and must have completed at least three upper level GEOL courses.
**Restriction:** Must be in Geology program; and junior standing or higher.

**GEOL412 Geology of the Terrestrial Planets (3 Credits)**
Geological features of Mercury, Venus, Mars and the Moon with an emphasis on results from recent NASA planetary mission. Topics include interior structure, impact cratering, tectonic and volcanic history, surface conditions, climate change, and habitability.
**Prerequisite:** GEOL341 or GEOL340.
**Credit Only Granted for:** GEOL489A or GEOL412.
**Formerly:** GEOL489A.

**GEOL413 Geoscientific Modeling (3 Credits)**
A model is a simplified representation of reality. Modeling is implicit or explicit in almost everything we do as geoscientists. Model construction, coding, and the concepts of parsimony vs complexity, robustness, validation, uncertainty, and the scientific interpretation of simulation results. Problem sets, independent study and participatory discussion of modeling applications in the current literature.
**Prerequisite:** MATH115; and two 400-level GEOL courses.
**Recommended:** Some experience in computer programming.
**Jointly offered with:** GEOL613.
**Restriction:** Non-degree-seeking students require the permission of the instructor.
**Credit Only Granted for:** GEOL413, GEOL489G, GEOL613 or GEOL789G.
**Formerly:** GEOL489G.

**GEOL423 Optical Mineralogy (4 Credits)**
The optical behavior of crystals with emphasis on the theory and application of the petrographic microscope.
**Prerequisite:** GEOL100 or GEOL120; and GEOL110; and GEOL322. And CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103.
**Restriction:** Non-degree-seeking students require the permission of the instructor.

**GEOL431 Vertebrate Paleobiology (4 Credits)**
A survey of the evolution of the vertebrates, encompassing information from the diversity of living members, but concentrating on the contribution of the fossil record. Emphasis is on the phylogenetic systematics, comparative and functional anatomy, developmental biology, and stratigraphic distribution of major extinct and extant groups.
**Prerequisite:** BSCI207, BSCI392, GEOL104, GEOL204, or GEOL331; or permission of CMNS-Geology department.

**GEOL435 Environmental Geochemistry (3 Credits)**
An understanding of geochemical cycles of Earth's surface systems including soils, rivers, lakes, and estuaries and causes and implications of alteration of geochemical cycles. Topics include chemical weathering, soils, chemical composition of inland waters, hydrologic tracers, salinization, eutrophication, nutrient and metal pollution, and global geochemical cycles.
**Prerequisite:** MATH115; and (GEOL100 or GEOL120); and (GEOL436 or GEOL444). And CHEM131 and CHEM132; or (CHEM135 and CHEM136).
**Restriction:** Nondegree-seeking students require the permission of the instructor.
**Credit Only Granted for:** GEOL489W or GEOL435.
**Formerly:** GEOL489W.

**GEOL436 Principles of Biogeochemistry (3 Credits)**
An introduction to the basic principles of biogeochemistry including aspects of organic geochemistry, biochemistry, microbiology, global geochemical cycles, the origin of life and paleoenvironmental evolution.
**Prerequisite:** MATH120 or MATH140; or must have completed MATH220. And (GEOL100 or GEOL120); and GEOL322. And CHEM131 and CHEM132; or (CHEM135 and CHEM136).
**Cross-listed with:** AOSC436.
**Restriction:** Non-degree-seeking students require the permission of the instructor.
**Credit Only Granted for:** GEOL436 or AOSC436.

**GEOL437 Global Climate Change: Past and Present (3 Credits)**
Introduction to the processes by which climate varies, the paleoclimate record, and projections of climate change into the 21st century, including discussion of climate sensitivity to external radiative forcing.
**Prerequisite:** MATH115 or MATH140; and (GEOL100 or GEOL120); and (CHEM131 or CHEM135); and (CHEM132 or CHEM136).
**Cross-listed with:** AOSC437.
**Credit Only Granted for:** AOSC437 or GEOL437.

**GEOL443 Petrology (4 Credits)**
Study of igneous and metamorphic rocks: petrogenesis, distributions, chemical and mineralogical relations, macroscopic and microscopic descriptions, geologic significance.
**Prerequisite:** GEOL322. And CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103. And must have completed or be concurrently enrolled in GEOL423; and (GEOL100 or GEOL120); and GEOL110.
**Corequisite:** Permission of CMNS-Geology department.
**Restriction:** Non-degree-seeking students require the permission of the instructor.

**GEOL444 Low Temperature Geochemistry (4 Credits)**
Basic chemical principles, thermodynamics, and kinetics of low-temperature inorganic and organic geochemical reactions in a wide range of surface environments. These geochemical tools will be used to provide a context for understanding elemental cycling and climate change. Laboratories will include problem sets as well as wet chemical and mass spectrometric techniques used in low temperature geochemistry.
**Prerequisite:** GEOL322, GEOL100, and MATH115. And CHEM103; or (CHEM131 and CHEM132); or (CHEM135 and CHEM136).
**Restriction:** Non-degree-seeking students require the permission of the instructor.

**GEOL445 High Temperature Geochemistry (4 Credits)**
Review of chemical principles and their use in understanding processes of Earth, and solar system formation and differentiation. Topics include nucleosynthesis and cosmochemical abundances of elements, bonding and element partitioning, equilibrium thermodynamics and phase stabilities, radiogenic isotopes and geochronology, kinetics, and diffusion.
**Prerequisite:** GEOL322, GEOL100, and MATH115. And CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103.
**Restriction:** Non-degree-seeking students require the permission of the instructor.

**GEOL446 Geophysics (3 Credits)**
An introduction to modern geophysics. Topics include: global plate tectonics, plate motion, triple junctions, geomagnetism, earthquakes and faulting, reflection and refraction seismology, gravity and isostasy, heat flow and mantle dynamics, deep interior of the Earth, geophysical observations and measurements.
**Prerequisite:** PHYS141, MATH141, and MATH140; and (GEOL100 or GEOL120).
**Restriction:** Non-degree-seeking students require the permission of the instructor.

**GEOL447 Observational Geophysics (3 Credits)**
An introduction to practical signal processing, data analysis, and inverse theory in geophysics.
**Prerequisite:** MATH140 and MATH141; and (PHYS141, PHYS161, or PHYS171).

**GEOL451 Groundwater (3 Credits)**
An introduction to the basic geologic parameters associated with the hydrologic cycle. Problems in the accumulation, distribution, and movement of groundwater will be analyzed.
**Prerequisite:** GEOL110 and MATH140; and (GEOL120 or GEOL100); and (CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103). Or permission of CMNS-Geology department.
**Restriction:** Non-degree-seeking students require the permission of the instructor; and junior standing or higher.

**GEOL452 Watershed and Wetland Hydrology (3 Credits)**
Physical processes by which water moves in watershed and wetland systems. Topics include: precipitation, infiltration, flow in the unsaturated zone, streamflow generation processes, and groundwater flow.
**Restriction:** Junior standing or higher; and all other students require the permission of the instructor.

**GEOL453 Ecosystem Restoration (3 Credits)**
Overview of ecosystem functions across biomes/geologic settings, and considerations and tradeoffs in ecosystem restoration strategies. Specific case studies and discussions will be aimed at understanding how structure can influence biophysical and biogeochemical processes supporting ecosystems, and then describes how rates, timing, and location of physical, chemical, and ecosystem processes can be altered by different restoration strategies to enhance ecosystem services.
**Prerequisite:** MATH120 or MATH140; or must have completed MATH220. And (CHEM131 or CHEM135); and (CHEM132 or CHEM136); and (GEOL100, GEOL120, or ENST200).
**Restriction:** Junior standing or higher; and permission of instructor is required of non-degree-seeking students.
**Credit Only Granted for:** GEOL453 or GEOL489L.
**Formerly:** GEOL489L.

**GEOL455 Marine Geophysics (3 Credits)**
Plate tectonics, earthquakes and faulting, isostasy and gravity, heat and mantle dynamics, ocean ridges and transform faults, hydrothermal vents, trenches and oceanic islands, subduction zones, accretionary and erosion wedges, sedimentary basins and continental rifts. Exploration of the oceans using geophysical methods.
**Prerequisite:** MATH141 and MATH140; and (GEOL120 or GEOL100). Or permission of CMNS-Geology department.
**Restriction:** Non-degree-seeking students require the permission of the instructor.
**Credit Only Granted for:** GEOL455 or GEOL489E.
**Formerly:** GEOL489E.

**GEOL456 Engineering Geology (3 Credits)**
An overview of engineering geology with an emphasis on physical understanding of natural hazards and natural resources. General theories of stress and strain, failure criteria, frictional stability, fluid flow in porous media and poroelasticity are introduced. Quantitative approaches on earthquakes, landslides, land subsidence, and geotechnical aspects of oil/gas exploration are discussed.
**Prerequisite:** PHYS141 and MATH141; and (GEOL120 or GEOL100). Or permission of CMNS-Geology department.
**Restriction:** Non-degree-seeking students require the permission of the instructor.
**Credit Only Granted for:** GEOL456 or GEOL489Z.
**Formerly:** GEOL489Z.

**GEOL457 Seismology (3 Credits)**
General overview of the basics of seismology, starting with wave propagation, seismic reflection and refraction. Applications to the determination of the seismic velocity and anisotropy structure of the Earth. Earthquake generation, postseismic deformation and creep events, relation to faulting and plate tectonics.
**Prerequisite:** GEOL120 or GEOL100; and (MATH141, GEOL110, and MATH140). Or permission of CMNS-Geology department.
**Recommended:** PHYS171, PHYS141, or PHYS161.
**Restriction:** Non-degree-seeking students require the permission of the instructor.
**Credit Only Granted for:** GEOL457 or GEOL489A.
**Formerly:** GEOL489A.

**GEOL460 Field Geophysics (4 Credits)**
Students will become familiar with geophysical instrumentation used for both scientific and industrial applications. Students will be given an introduction to the use of geophysical instrumentation for data collection, processing, and analysis, design of field experiments for investigating field geophysical problems, and an introduction to the theory of instrument design and use. Instruments that will be covered include (but are not limited to): broadband seismometers, geophones, ground-penetrating radar, magnetotellurics, and Global Positioning Satellites.
**Prerequisite:** GEOL100 or GEOL120, MATH140, MATH141, and (PHYS141, PHYS161, or PHYS171).
**Restriction:** Non-degree-seeking students require the permission of the instructor.

**GEOL472 Tectonics (3 Credits)**
Study of the development of the lithosphere on Earth and other rocky planets and moons. Emphasis on student-led discussions. Improvement of scientific writing.
**Prerequisite:** GEOL120 or GEOL100; and (GEOL102, GEOL341, and GEOL110).
**Restriction:** Non-degree-seeking students require the permission of the instructor.

**GEOL473 Origin and Evolution of the Continents (3 Credits)**
Introduction to current theories regarding the origin and evolution of the continents. Emphasis on development of critical reading and reasoning skills, and improvement of verbal and written communication.
**Prerequisite:** GEOL445 and GEOL443; or permission of instructor.
**Restriction:** Non-degree-seeking students require the permission of the instructor.
**Formerly:** GEOL489I.

**GEOL488 Geology Colloquium (1 Credit)**
Contemporary research topics and issues in geosciences are explored through the weekly Geology departmental colloquium and discussion of its contents.
**Prerequisite:** At least one 300 or 400-level Geology course of at least 3 credits.
**Restriction:** May not be taken concurrently with GEOL497 or GEOL497H.
**Repeatable to:** 4 credits.

**GEOL489 Special Topics (3 Credits)**
Recent advances in geology.
**Prerequisite:** Must have completed at least 2 upper-level GEOL courses plus one additional GEOL course.
**Corequisite:** GEOL393.
**Restriction:** Must be in Geology program; and junior standing or higher.

**GEOL490 Geology Field Camp (6 Credits)**
Intense field geology course taught off campus during the summer. Students describe and compile maps of formations and structures from outcrops, subsurface, and remotely sensed data. Special fees required.
**Prerequisite:** GEOL341 and GEOL443.
**Restriction:** Non-degree-seeking students require the permission of the instructor.

**GEOL491 Environmental Geology Field Camp (3-6 Credits)**
Intensive field course designed for students of environmental geology. Students will learn to make maps, to describe soil profiles and site characteristics, to monitor hydrologic and groundwater conditions, and to measure geologic structures and stratigraphic sections.
**Prerequisite:** GEOL341, GEOL342, and GEOL451; or permission of CMNS-Geology department.
**Restriction:** Non-degree-seeking students require the permission of the instructor.
**Credit Only Granted for:** GEOL490 or GEOL491.

**GEOL497 Recent Advances: Geology (3 Credits)**
A survey of important recent advances in geological sciences in the context of the methods and practices of scientific research.
**Prerequisite:** Must have completed at least 2 upper-level GEOL courses.
**Corequisite:** GEOL393; and a third upper-level geology course.
**Restriction:** Must be in Geology program; and GPA of 3.0 or better in both overall and in all courses required for the major; and senior standing; and to be taken as late as possible in the program.
**Credit Only Granted for:** GEOL497 or GEOL489H.
**Formerly:** GEOL489H.

**GEOL499 Special Problems in Geology (1-3 Credits)**
Intensive study of a special geologic subject or technique selected after consultation with instructor. Intended to provide training or instruction not available in other courses which will aid the student's development in his or her field of major interest.
**Prerequisite:** (GEOL120 or GEOL100; and (GEOL102 and GEOL110)); or students who have taken courses with comparable content may contact the department. And permission of CMNS-Geology department.
**Restriction:** Non-degree-seeking students require the permission of the instructor.

# GERM - Germanic Studies

**GERM331 Kafka and Film: The Uncanny in Literature and Film (3 Credits)**
Analysis of major works by Franz Kafka (1883-1924), his affinity to the cinema and use of cinematic means and techniques (e.g. the gaze, flashback, parallel action, gesture and body language, etc.) in his writings, as well as examination of adaptations of Kafka narratives (e.g. the Orson Welles and David Jones adaptations of The Trial, 1961, 1992) and other films that use Kafkaian themes (e.g. Steven Soderbergh's 'Kafka', 1991).
**Cross-listed with:** CINE331.
**Credit Only Granted for:** GERM331, CINE331, FILM331, or HONR348K.
**Formerly:** FILM331.

**GERM385 German Cinema (3 Credits)**
A history of German cinema from the golden age of silent films to the flourishing film culture of the 21st Century. Focuses on changing ideas of the role and purpose of national cinema, as well as the cinematic representation of nation and national identity. Taught in English.
**Cross-listed with:** CINE385.
**Credit Only Granted for:** GERM385, CINE385 or FILM385.
**Formerly:** FILM385.

# GERS - German Studies

**GERS103 Intensive Elementary German (4 Credits)**
Covers speaking, reading, writing, listening, and culture of German-speaking world.
**Prerequisite:** Must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Must not be a fluent/native speaker of German.
**Credit Only Granted for:** GERS103 or GERM103.
**Formerly:** GERM103.

**GERS141 Yiddish I (3 Credits)**
Introduction to the Yiddish language, with emphasis on speaking, reading, and writing skills. Students will also learn the history of the language, its significance to Jewish culture, its origins and basic structure.
**Cross-listed with:** JWST281.
**Credit Only Granted for:** JWST281, GERM148Y or GERS141.

**GERS142 Elementary Yiddish II (3 Credits)**
Continuation of JWST281.
**Prerequisite:** JWST281; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies.
**Cross-listed with:** JWST282.
**Credit Only Granted for:** GERM149Z, GERS142 or JWST282.

**GERS148 Germanic Languages - Elementary I (3 Credits)**
Basic instruction in a Germanic language other than German; Yiddish and Swedish are offered regularly, Danish, Netherlandic, and Norwegian when demand is sufficient. Subtitle will reflect the language. May be repeated in a different language.
**Repeatable to:** 6 credits if content differs.
**Formerly:** GERM148.

**GERS149 Germanic Languages - Elementary II (3 Credits)**
Continuation of GERM148. May be repeated in a different language. Subtitle will reflect the language.
**Prerequisite:** GERM148.
**Repeatable to:** 6 credits.
**Formerly:** GERM149.

**GERS169 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.
**Formerly:** GERM169.

**GERS203 Intensive Intermediate German (4 Credits)**
Covers speaking, reading, writing, listening, and culture of German-speaking world.
**Prerequisite:** GERS103; or must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Must not be a fluent/native speaker of German.
**Credit Only Granted for:** GERM203 or GERS203.
**Formerly:** GERM203.

**GERS204 German Grammar Review (3 Credits)**
An in-depth study and analysis of selected grammatical topics in a contextualized framework.
**Prerequisite:** GERS203; or Must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Must not be a fluent/native speaker of German.
**Credit Only Granted for:** GERM204 or GERS204.
**Formerly:** GERM204.

**GERS248 Germanic Languages Intermediate - I (3 Credits)**
Intermediate instruction in a Germanic language other than German. May be repeated in a different language. Subtitle will reflect the language.
**Prerequisite:** GERM149.
**Repeatable to:** 6 credits.
**Formerly:** GERM248.

**GERS249 Germanic Languages - Intermediate II (3 Credits)**
Continuation of GERM248. May be repeated in a different language. Subtitle will reflect the language.
**Prerequisite:** GERM248.
**Repeatable to:** 6 credits.
**Formerly:** GERM249.

**GERS255 Once Upon a Time: Fairy Tales of the Brothers Grimm (3 Credits)**
A critical examination of how fairy tales and folklore pervade and influence diverse facets of Western culture, ranging from issues of politics and national identity, ethics and morality, violence and fear, education and pedagogy, to gender and sexuality in the establishment and regulation of social norms. Taking the German tales collected by Jacob and Wilhelm Grimm as its focal point, the magical and often terrifying world of fairy tales within the German, European, and American cultural traditions from Romanticism to today will be explored. Taught in English.
**Credit Only Granted for:** GERM255 or GERS255.
**Formerly:** GERM255.

**GERS269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.
**Formerly:** GERM269.

**GERS289 Selected Topics in the Cultures of the German-Speaking Countries (3 Credits)**
Topics in the cultures of the German-speaking countries.
**Prerequisite:** Permission of instructor.
**Repeatable to:** 6 credits if content differs.
**Formerly:** GERM289.

**GERS299 Special Topics in German Studies (3 Credits)**
Selected topics on language, literature, or culture of the German-speaking world.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 9 credits if content differs.

**GERS301 Conversation and Composition I: The German-Speaking World (3 Credits)**
Practice in contemporary spoken and written German. Systematic review of grammar, and exercises in composition. Emphasis on cultural contrasts in the German-speaking world.
**Prerequisite:** GERS204; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** GERM301 or GERS301.
**Formerly:** GERM301.

**GERS302 Conversation and Composition II: Current Topics in German-Speaking Society (3 Credits)**
Further practice in contemporary spoken and written German. Contemporary social, political, and cultural themes.
**Prerequisite:** GERS301; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** GERM302 or GERS302.
**Formerly:** GERM302.

**GERS315 Practicum in Translation I (3 Credits)**
Problems and strategies of translation from German to English.
**Prerequisite:** GERS301; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** GERM315 or GERS315.
**Formerly:** GERM315.

**GERS319 Selected Topics in German Language Studies (1-3 Credits)**
The analysis of the German language as a reflection of cultural, functional, and social practice in the German-speaking world.
**Prerequisite:** GERS203; or students who have taken courses with comparable content may contact the department.
**Repeatable to:** 6 credits if content differs.

**GERS320 Survey of German Studies (3 Credits)**
Approaches to analysis of German cultural products such as literature, film, poetry, architecture and works of art. Taught in German.
**Prerequisite:** GERS301; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** GERM320 or GERS320.
**Formerly:** GERM320.

**GERS322 Highlights of German Literature and Culture (3 Credits)**
Selected literary masterworks, social and cultural issues, and historical events in German-speaking countries from the Enlightenment, Romanticism, Junges Deutschland, Realism, Naturalism and its counter currents, Expressionism to the present. Taught in German.
**Prerequisite:** GERS302; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** GERM322 or GERS322.
**Formerly:** GERM322.

**GERS331 Kafka and Film: The Uncanny in Literature and Film (3 Credits)**
Analysis of major works by Franz Kafka (1883-1924), his affinity to the cinema and use of cinematic means and techniques (e.g. the gaze, flashback, parallel action, gesture and body language, etc.) in his writings, as well as examination of adaptations of Kafka narratives (e.g. the Orson Welles and David Jones adaptations of The Trial, 1961, 1992) and other films that use Kafkaian themes (e.g. Steven Soderbergh's 'Kafka', 1991).
**Cross-listed with:** CINE331.
**Credit Only Granted for:** GERM331, GERS331, or CINE331.

**GERS339 German Literature In Translation (3 Credits)**
Selected movements, genres or other special topics in German literature. Readings and instruction in English. May not be counted in the fulfillment of German major requirements in German literature.
**Repeatable to:** 6 credits if content differs.
**Formerly:** GERM339.

**GERS349 Germanic Literatures in Translation (3 Credits)**
Study of an important author, period or theme in a Germanic literature other than German: Yiddish, Netherlandic or Scandinavian. Taught in English.
**Repeatable to:** 6 credits if content differs.
**Formerly:** GERM349.

**GERS356 German for the Professions (3 Credits)**
An examination of the structures and work conditions of various industries in the German-speaking world including understanding and navigating company culture, professional development, and preparation for an internship or job where German is spoken.
**Prerequisite:** GERS301.
**Credit Only Granted for:** GERM319B, GERM356 or GERS356.
**Formerly:** GERM356.

**GERS367 The Great Derangement: Climate, Art, and Literature (3 Credits)**
An investigation of the relationship between climate and art & literature. Introduction to ecological thinking followed by study of artistic and literary works thematically grouped by the four elements: Earth, Water, Air, and Fire. Readings from the German literary tradition (Goethe, Tieck, Stifter, Kafka, Frisch, Wolf) and contemporary research in the environmental humanities, with additional readings and viewings from elsewhere on the planet. Taught in English.
**Recommended:** 200-level General Education and/or humanities course; and sophomore standing.
**Cross-listed with:** CMLT399E.
**Credit Only Granted for:** GERM399E, CMLT399E, or GERS367.
**Formerly:** GERM399E.
**Additional Information:** Priority in enrollment will be given to German majors.

**GERS369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.
**Formerly:** GERS369.

**GERS383 The 'Warrior' in German Culture: From Valiant Knights to Brazen Terrorists (3 Credits)**
Acknowledging the nexus between acts of military aggression and political apparatuses, this course examines the semiotic significance of literary and cinematic manifestations of the warrior at critical junctures in German history. Taking the warrior as its focal point, this course explores the intricate web connecting various forms of military conflict, political systems of power, and social conventions within Western civilization from Antiquity to today. Taught in English.

**GERS385 German Cinema (3 Credits)**
A history of German cinema from the golden age of silent films to the flourishing film culture of the 21st Century. Focuses on changing ideas of the role and purpose of national cinema, as well as the cinematic representation of nation and national identity. Taught in English.
**Cross-listed with:** CINE385.
**Credit Only Granted for:** GERM385, GERS385, CINE385 or FILM385.
**Formerly:** FILM385.

**GERS386 Experiential Learning (1-6 Credits)**
Internship and practicum.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Junior standing or higher.
**Credit Only Granted for:** GERM386 or GERS386.
**Formerly:** GERM386.

**GERS388 Language House Spring Colloquium (1 Credit)**
For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.
**Restriction:** Must be a resident of Language House.
**Repeatable to:** 8 credits.
**Formerly:** GERM388.

**GERS389 Topics in German Culture (3 Credits)**
Topics in the cultures of the German-speaking peoples. Taught in English.
**Repeatable to:** 6 credits if content differs.

**GERS397 Honors Reading (Independent Study) (3 Credits)**
Supervised reading to be taken normally only by students admitted into honors program.
**Credit Only Granted for:** GERM397 or GERS397.
**Formerly:** GERM397.

**GERS398 Honors Research (3 Credits)**
Prepares students to write an honors thesis. Under the direction of a German department faculty member, the student will select a thesis topic and conduct the necessary research.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** GERM398 or GER398.
**Formerly:** GERM398.

**GERS399 Selected Topics in German Studies (3 Credits)**
Selected topics on the language, literature, and culture of the German-speaking world.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 9 credits if content differs.

**GERS402 Advanced Conversation and Composition (3 Credits)**
Advanced instruction in and acquisition of written and oral communication skills in German
**Prerequisite:** GERS302; or students who have taken courses with comparable content may contact the department.
**Restriction:** Must not have completed GERS401 or GERS403.
**Credit Only Granted for:** (GERM401 and GERM403), GERM402, or GERS402.
**Formerly:** GERM402.

**GERS411 German for International Business I (3 Credits)**
Advanced skills in German for international business, including understanding and writing correspondence, reports, graphics, ads, etc., according to current German commercial style.
**Credit Only Granted for:** GERM411 or GERS411.
**Formerly:** GERM411.

**GERS415 German/English Translation I (3 Credits)**
An intensive presentation of German grammar limited exclusively to reading skill; graded readings in the arts and sciences. Instruction in English; cannot be used to satisfy the arts and humanities foreign language requirement.
**Restriction:** Must not have completed GERS103, GERS203, GERS204, GERS301, or GERS302.

**GERS419 Selected Topics in German Language Studies (3 Credits)**
The analysis of the German language as a reflection of cultural, functional, and social practice in the German-speaking world.
**Prerequisite:** GERS302; and permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** GERM419 or GERS419.
**Formerly:** GERM419.

**GERS436 The Usual Suspects: Criminals in German Literature and Film (3 Credits)**
An examination of how historical, cultural and political discourses in German-speaking countries influence social norms and criteria for judging what is considered socially acceptable or "deviant". Texts and films span from the 18th to 21st centuries. Taught in German.
**Prerequisite:** GERS320 or GERS322; or permission of instructor.
**Credit Only Granted for:** GERM436 or GERS436.
**Formerly:** GERM436.

**GERS439 Selected Topics in German Literature (3 Credits)**
Special study of an author, school, genre, or theme. Taught in German.
**Prerequisite:** GERS320, GERS321, or GERS322; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 6 credits if content differs.
**Formerly:** GERM439.

**GERS441 Border Crossings and Cultural Transfers (3 Credits)**
Border Crossings and Cultural Transfers emphasizes the transnational and global dimensions of German culture, analyzing the interrelationship of dominant and minority cultures within Germany and/or the impact of German cultures abroad. Topics include migration, exile, (post)colonialism, and globalization. Taught in German.
**Prerequisite:** GERS320 or GERS322.
**Credit Only Granted for:** GERM441 or GERS441.
**Formerly:** GERM441.

**GERS442 Gender and Sexuality in German Literature and Society (3 Credits)**
Gender and Sexuality in German Literature and Society analyzes gender and sexuality as key discourses for understanding German-speaking literatures, cultures, and societies. Topics include the history of sexuality; death and desire; and representations of gender in German literature. Taught in German.
**Prerequisite:** GERS320 or GERS322.
**Credit Only Granted for:** GERM442 or GERS442.
**Formerly:** GERM442.

**GERS443 Literature as Cultural Discourse (3 Credits)**
Investigates literature as cultural discourse in the construction of knowledge, emphasizing a discursive approach to analyzing a range of literary texts. Taught in German.
**Prerequisite:** GERS320 or GERS322.

**GERS444 The German-Jewish Experience (3 Credits)**
Focuses on the German-Jewish experience as a key dimension of European history, literature, and culture. Topics include Heinrich Heine, German-Jewish authors and texts, and the Holocaust in literature and film.
**Prerequisite:** GERS320 or GERS322.
**Credit Only Granted for:** GERM444 or GERS444.
**Formerly:** GERM444.
**Additional Information:** Taught in German.

**GERS449 Selected Topics in German Studies (3 Credits)**
Study of a linguistic, literary or cultural topic in Yiddish, Netherlandic, or Scandinavian studies.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 6 credits if content differs.
**Formerly:** GERM449.

**GERS457 Germany: Energy Transition, Climate Change, and Sustainability (3 Credits)**
Interdisciplinary examination of Germany as a leading model in dealing with contemporary issues of sustainability as well as the economic, social, and political impacts of climate change in a global world. Students will learn the basics of climate change, examine policy tools (e.g. carbon taxes, regulations, incentives, etc.) and technological innovations to curb the causes of climate change and promote sustainable practices. Students will also learn how cultural values and traditions inform policy making by examining the history of the environmental movement in German cultural artifacts (e.g., art, literature, grass-roots social movements, etc.). Designed to appeal to students with a variety of backgrounds (technical, policy and government, and humanities), the course blends site visits (e.g. coal mines, government offices, technical universities, artist studios, grass-roots collectives, museums, parks, etc.) with academic lectures by experts in pertinent fields and faculty-led discussion groups. Students will receive an overarching and holistic overview of the economic, political, and cultural costs of climate change as well as current efforts to offset the negative impacts through greater sustainability. Taught in English.
**Cross-listed with:** AREC357.
**Credit Only Granted for:** AREC357 or GERS457.

**GERS458 Literary or Media Genres (3 Credits)**
Literary or Media Genres studies the formal and stylistic dimensions of specific genres, emphasizing genre as a social, political, and aesthetic category. Topics include pop literature; the history of German drama; and German film genres among others.
**Prerequisite:** GERS320 or GERS322.
**Repeatable to:** 6 credits if content differs.
**Formerly:** GERM458.
**Additional Information:** Taught in German.

**GERS473 Variation in Contemporary German Language (3 Credits)**
Examines the unique, multilingual society that is modern Germany, exploring issues such as regional varieties, gendered language, language reform (and resistance to it), public and media speech, the influence of American English on colloquial speech and in specific fields, and the problems of immigrant communities acquiring both dialect and standard German.
**Prerequisite:** GERS302; or permission of instructor.
**Credit Only Granted for:** GERM473, GERS473, GERM673, or GERS673.
**Formerly:** GERM473.

**GERS489 Social Issues in German Culture (1-3 Credits)**
Special topics course examining the cultural constructions and representations of important social, political, and linguistic issues, investigating their connection to German values and institutions. Taught in German.
**Prerequisite:** GERS320 or GERS322.
**Repeatable to:** 6 credits if content differs.
**Formerly:** GERM489.

**GERS498 Honors Thesis Writing (3 Credits)**
Required for students pursuing departmental honors in German languages and literatures. Under the direction of a German department faculty member, students write their honors theses.
**Restriction:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 6 credits if content differs.
**Formerly:** GERM498.

**GERS499 Directed Study (1-3 Credits)**
Student-driven, independent study of a specialized topic in coordination with a faculty advisor.
**Restriction:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 6 credits if content differs.
**Formerly:** GERM499.

# GREK - Greek

**GREK101 Elementary Ancient Greek I (4 Credits)**
Study of basic grammar, development of reading facility, and introduction to Athenian life and culture in the fifth century B.C.
**Restriction:** A student who has had two units of Greek in high school may register for GREK101 for purposes of review but not for credit.

**GREK102 Elementary Ancient Greek II (4 Credits)**
Continuing development of basic grammar and reading skills; study and discussion of central aspects of Greek culture.
**Prerequisite:** GREK101; or students who have taken courses with comparable content may contact the department.

**GREK111 Elementary Modern Greek I (3 Credits)**
An introduction to the language and culture of modern Greece. Students begin to acquire the basic tools of the language and to communicate, in simple everyday situations. This is the first of our two-semester sequence in Elementary Modern Greek and contributes to the fulfillment of the Global Engagement requirement of the College of Arts and Humanities.
**Restriction:** Must not be a native speaker of Greek.

**GREK112 Elementary Modern Greek II (3 Credits)**
It is designed for students who have already completed the first semester course (GREK111) and/or those whose level of proficiency in Greek is not advanced enough for the intermediate level. Like GREK111, an introduction is provided to the language and culture of modern Greece. Students acquire the basic tools of the language and learn to communicate in simple, everyday situations. This is the second of our two-semester sequence in Elementary Modern Greek and contributes to the fulfillment of the Global Engagement requirement of the College of Arts and Humanities.
**Prerequisite:** GREK111; or permission of instructor.

**GREK201 Intermediate Ancient Greek (4 Credits)**
Advancing beyond the basic skills developed in GREK 101 and GREK 102; review of selected grammatical concepts; continuous reading of passages from Greek literature.
**Prerequisite:** GREK102; or students who have taken courses with comparable content may contact the department.

**GREK211 Intermediate Modern Greek I (3 Credits)**
A continuation of the study of basic structures and the development of fluency in functional, spoken and written communication. This is the first of our two-semester sequence in Intermediate Modern Greek and contributes to the fulfillment of the Global Engagement requirement of the College of Arts and Humanities.
**Prerequisite:** GREK112; or permission of instructor.

**GREK212 Intermediate Modern Greek II (3 Credits)**
A continuation in the development of fluency in spoken and written communication along with the exploration of syntactic and grammatical structures. Comprehension and vocabulary enrichment are further developed through selected readings from Modern Greek prose and poetry. This is the second of our two-semester sequence in Intermediate Modern Greek and contributes to the fulfillment of the Global Engagement requirement of the College of Arts and Humanities.
**Prerequisite:** GREK211; or permission of instructor.

**GREK269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**GREK301 Scenes from Athenian Life (3 Credits)**
Makes the transition from study of Greek grammar to reading. Focus on selected aspects of life in Athens: marriage, friendship, the courts, festival, theatre. Reading short works by three authors: Lysias, Plato, and a playwright (e.g., Menander). Readings are in ancient Greek.
**Credit Only Granted for:** GREK301 or GREK351.
**Formerly:** GREK351.

**GREK369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**GREK386 Experiential Learning (3-6 Credits)**
**Restriction:** Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor; and junior standing or higher.

**GREK388 Intermediate Ancient Greek Readings (3 Credits)**
The reading of one or more selected Greek authors from the archaic period through late antiquity. Appropriate for those at an intermediate level in the study of ancient Greek.
**Prerequisite:** GREK201; or students who have taken courses with comparable content may contact the department.

**GREK398 Advanced Modern Greek (3 Credits)**
Develops advanced communication skills in the modern Greek language: speaking, listening, reading, and writing.
**Prerequisite:** GREK212; or permission of ARHU-Classics department.
**Repeatable to:** 6 credits.

**GREK399 Topics in Advanced Modern Greek Language & Culture (3 Credits)**
Development of communicative skills in advanced Modern Greek. Topics will be drawn from the social and folk life of modern Greece.
**Prerequisite:** GREK212; or permission of ARHU-Classics department.
**Repeatable to:** 6 credits.

**GREK411 Modern Greek Literature and History (3 Credits)**
Students will study historical and political events in Greece during the 19th and 20th centuries through the viewpoint of the man of letters. Poetry, prose, plays, and essays reflect national emancipation, social reconstruction, and political struggles. Readings and discussion are in Modern Greek.
**Prerequisite:** Students must have earned a grade of C- or better in a 300-level Modern Greek course.
**Restriction:** Permission of instructor.
**Credit Only Granted for:** GREK311 or GREK411.
**Formerly:** GREK311.

**GREK415 Homer (3 Credits)**
Extensive readings in Greek from the Iliad or the Odyssey, with special attention to the features of Homeric style and the relationship between the two epics.
**Prerequisite:** Permission of ARHU-Classics department.

**GREK472 History and Development of the Greek Language (3 Credits)**
Mastery of ancient Greek through grammar review, prose composition, and analysis of historical developments in Greek writers' modes of expression.
**Restriction:** Permission of instructor.

**GREK488 Greek Readings (3 Credits)**
The reading of one or more selected Greek authors. Reports.
**Prerequisite:** Permission of ARHU-Classics department.
**Repeatable to:** 6 credits if content differs.
**Additional Information:** Readings are in ancient Greek.

**GREK499 Independent Study in Greek Language and Literature (1-3 Credits)**
**Prerequisite:** Permission of ARHU-Classics department.
**Repeatable to:** 6 credits if content differs.

# GVPT - Government and Politics

**GVPT101 Introduction to Political Science (3 Credits)**
A study of the basic principles and concepts of political science.

**GVPT105 Introduction to Political Ethics (3 Credits)**
An examination of major theories of political life and politics as they pertain to international politics, conflict, and culture. Emphasis will be given to theories of ethics and morality that pertain to international studies, such as human rights.
**Restriction:** Must be in the College Park Scholars program; and must be in International Studies program or Public Leadership program.

**GVPT158 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**GVPT170 American Government (3 Credits)**
A comprehensive study of national government in the United States.

**GVPT200 International Political Relations (3 Credits)**
A study of the major factors underlying international relations, the causes of conflict and cooperation among international actors, the role of international institutions, the interactions of domestic and foreign policies, and major issues in security, economy and the environment.

**GVPT201 Scope and Methods for Political Science Research (3 Credits)**
An introduction to empirical research in political science.
**Credit Only Granted for:** GVPT100 or GVPT201.
**Formerly:** GVPT100.

**GVPT202 Law or Politics? The U.S. Supreme Court and Individual Rights (3 Credits)**
A thorough examination of the state of individual rights before the U.S. Supreme Court. The course will consider how recent cases the Court has decided and current pending cases have shaped the meaning of the U.S. Constitution. A critical component will involve peer deliberation over the proper roles of law and politics and their impacts on the current state of individual rights in the United States. Students will examine constitutional case studies throughout the semester and contribute to group and classroom discussions of issues being considered by the sitting Court. Students will also learn the foundational concepts of how the Court operates as both a legal and political institution, as well as its place in the larger political system. Special emphasis will be given to the social scientific study of the Supreme Court.

**GVPT203 The Challenge of Authoritarianism (3 Credits)**
An introduction to the persistent challenge of authoritarianism. The course explores the nature of authoritarianism and its evolution from ancient through modern times. Students will study how authoritarian regimes vary, why citizens sometimes comply with them, and when and how citizens rebel. The course concludes with a review of contemporary authoritarianism, focusing on its resilience in the Middle East and East Asia and its potential for a resurgence in the US and Europe.

**GVPT204 Uncertain Partners: US and China in a Changing World (3 Credits)**
The rapid ascent of the People's Republic of China (PRC) as a major political and economic power has meant that its relationship with the United States has become central in contemporary international politics. To an increasing extent, some of the biggest global challenges--ranging from nuclear proliferation, to climate change, to economic growth--require U.S.-China cooperation if they are to be managed effectively. Yet the U.S.-China relationship is at times turbulent, and its future remains highly uncertain. Will the U.S. and China be able to forge a closer partnership that will enable them to cooperate in dealing with some of the vexing challenges facing the international community? Or are they more likely to drift toward a more adversarial relationship, as China's growing power--and the US reaction--generate a vicious cycle of mutual mistrust? In this class, students will grapple with these questions as they learn about the history of U.S.-China relations, and about many of the current issues facing the relationship.
**Credit Only Granted for:** GVPT204 or GVPT289J.
**Formerly:** GVPT289J.

**GVPT205 Special Topics in International Ethics, Conflict, and Immigration (3 Credits)**
An examination of issues in international ethics, conflict generated at the international level, and problems in immigration policy and law, including theories of rights and immigration, and ideological sources of international violence.
**Prerequisite:** GVPT105.
**Recommended:** GVPT241.
**Restriction:** Must be in College Park Scholars program; and must be in GVPT international Studies program.

**GVPT206 Appetite for Change: Politics and the Globalization of Food (3 Credits)**
An overview of the major forces transforming the food system--political, economic, technological, environmental--and the political debates surrounding them.
**Credit Only Granted for:** GVPT206 or GVPT289A.
**Formerly:** GVPT289A.

**GVPT207 Racial and Ethnic Politics in the Obama Era (3 Credits)**
This course seeks to understand the meaning and significance of Barack Obama as the first African American president. The course examines the extent to which the United States of America has entered into a post-racial society. We also examine the policy challenges Obama has faced as the first African American president. One example is the passing of comprehensive health care reform. We discuss whether opposition to health care is driven by people's racial attitudes or their different views about the role of government. Others topics that the course will examine are: how Obama became the first African American president; the strategies his campaign used to motivate citizens to the voting booth; the public's reaction to Obama's election; racial group identity during the Obama era; Trump's victory as a response to Obama.
**Credit Only Granted for:** GVPT207 or GVPT289O.
**Formerly:** GVPT289O.

**GVPT208 Political Science Topics in Study Abroad (3 Credits)**
The study of topics in political science taken as part of an approved study abroad program.
**Repeatable to:** 9 credits if content differs.

**GVPT210 Religions, Beliefs, and World Affairs (3 Credits)**
Introduces students to an increasingly important question: what is the relationship between religion and politics around the world? For a long period in the 20th Century, religion seemed to be decreasing in importance. Eventually, it was thought, religion would simply go away and secularism, development, and rationality would rule the day. In the last generation, however, events like the Iranian Revolution, the rise of the Christian Right, 9/11, the Tibetan monks protest, the spread of Truth and Reconciliation Commissions, and numerous wars fought in the name of God have brought religion back to prominence in world affairs. In this course, we will explore the contemporary impact of religions on politics around the world, through four broad themes: how to understand religion in politics , the relationship between religion and the state, religious groups as sources of conflict and peace, and contemporary religio-political challenges.
**Credit Only Granted for:** GVPT210 or GVPT289L.
**Formerly:** GVPT289L.

**GVPT211 Peace in our time? Conflict and Conflict Resolution in International Politics (3 Credits)**
Is the world getting more peaceful? Wars rage in much of the world, leading millions of people to flee as refugees or internally displaced persons. Terrorist attacks kill thousands, and can occur in any corner of the planet. At the same time many actors use strategies such as peacekeeping, mediation, and human rights promotion to resolve conflicts and build peace. In this course, we examine conflict, peace, and conflict resolution in contemporary international politics. We interrogate concepts such as peace, conflict, and violence and the different forms they take. We discuss theoretical explanations for why individuals and groups have disputes and why they choose to use violence (or not) in these disputes. We analyze conflict resolution strategies such as mediation and peacekeeping theoretically and empirically. This discussion prepares students to develop an argument for whether the world is getting more peaceful and what this could mean about the future of violence and peace.
**Credit Only Granted for:** HNUH228A or GVPT211.
**Formerly:** HNUH228A.

**GVPT217 Mock Trial (3 Credits)**
Experience the excitement and reward of arguing, and perhaps winning your client's case in court. Mock Trial is designed for students who are interested in learning practical techniques for shaping the evidence, using the law, and exploiting the courtroom to create a coherent and convincing case theory.
**Cross-listed with:** MLAW217.
**Credit Only Granted for:** MLAW217, GVPT217, or GVPT319A.
**Formerly:** GVPT319A.

**GVPT221 Introduction to Formal Theories of Political Behavior and Politics (3 Credits)**
An introduction to the theories of rational choice including theories of negotiation and bargaining, elections and voting in democracies, community organizing and the contrast between the roles and performances of government and market.
**Prerequisite:** GVPT170.

**GVPT228 The Craft of Political Science Research (4 Credits)**
An introduction to research design and statistics applicable to political science.
**Prerequisite:** GVPT100 and GVPT170.
**Restriction:** Must be in a major in BSOS-College of Behavioral & Social Sciences; and sophomore standing or higher.
**Repeatable to:** 8 credits if content differs.
**Formerly:** GVPT227.

**GVPT241 The Study of Political Philosophy: Ancient and Modern (3 Credits)**
Examines some of the salient continuities and breaks between the ancient and modern traditions in Western political philosophy.

**GVPT258 Introduction to Political Science Topics in Study Abroad (3 Credits)**
The study of topics in political science taken as part of an approve study abroad program.
**Repeatable to:** 9 credits if content differs.

**GVPT273 Introduction to Environmental Politics (3 Credits)**
An overview of modern environmental philosophy, politics, and policy, exploring environmental politics in the US by way of comparison with other developed and developing countries.

**GVPT280 The Study of Comparative Politics (3 Credits)**
An introduction to the comparative study of politics and governance, including the analytical concepts for studies of politics and a survey of the major types of regimes, including democratic and authoritarian/communist regimes.

**GVPT282 The Politics of Global Development (3 Credits)**
A study of the domestic governmental institutions; processes and problems such as conflict and economic development; and the socio-economic environments that are common to lower-income countries around the world.

**GVPT289 Special Topics in Government and Politics (1-6 Credits)**
Substantive issues of and theoretical approaches to political phenomenon. Topics and credit vary.
**Repeatable to:** 6 credits if content differs.

**GVPT289D How to Make Better Decisions (3 Credits)**
The problem with decisions is that we rarely, if ever, find out if our decisions were good or bad. Was choosing your major, for instance, a good decision or could you have made a better one? I don't think most of us would ever know the answer to this question. So, is it possible that we regularly make bad decisions but don't know that we do? And, if so, how can we fix something if we don't know it is broken? In fact, we do regularly make bad decisions. This has been shown in many experimental studies some of which will be covered in this class. What is more, for some types of decision problems we are hardwired to make mistakes. This means that we are bound to go wrong regardless of how much we know or how smart we are. So, what can we do to remedy this problem? Quite a bit, as it turns out.

**GVPT301 Identity and Conflict (3 Credits)**
An examination of identity as a source of civil conflict. The course explores how identity is embedded in context, how identity is manipulated for political ends, and how identity conflict may be resolved.

**GVPT306 Global Environmental Politics (3 Credits)**
Focus on three processes of international environmental policy development- identifying problems, negotiating solutions, and implementing agreements- through a range of case studies, including global climate change.
**Prerequisite:** GVPT200.
**Restriction:** Must be in one of the following programs (Government & Politics; Government & Politics: International Relations) ; or permission of BSOS-Government & Politics department.

**GVPT308 Political Science Topics in Study Abroad II (3 Credits)**
The study of topics in political science taken as part of an approved study abroad program.
**Repeatable to:** 9 credits if content differs.

**GVPT309 Topics in International Relations (3 Credits)**
The study of topics in international relations.
**Repeatable to:** 6 credits if content differs.

**GVPT317 Mock Trial II: Advanced Trial Advocacy (3 Credits)**
Development of trial advocacy skills through participation in practice trials and intercollegiate mock trial competitions. Student may have an opportunity to represent the university in intercollegiate mock trial tournaments, including the National Mock Trial Championships.
**Prerequisite:** GVPT217.
**Credit Only Granted for:** GVPT317 or GVPT319B.
**Formerly:** GVPT319B.

**GVPT319 Topics in Social Advocacy (1-3 Credits)**
Reading, research and discussion of variety of topics related to social advocacy.
**Repeatable to:** 6 credits if content differs.

**GVPT320 Advanced Empirical Research (3 Credits)**
Allows students to build on the knowledge of statistical inference they gained from GVPT201. Topics include data collection, data cleaning, data analysis, and data visualization. By the time students complete this class, they will be able to do basic statistical modeling using OLS regression independently.
**Prerequisite:** GVPT201.
**Restriction:** Must be in Government & Politics or Government & Politics: International Relations program.

**GVPT331 Courts, Law and Justice (3 Credits)**
An introductory course to the study of law with emphasis on how lawyers and judges think and argue. Topics include, contract law, property, family law, torts, and criminal procedure.
**Prerequisite:** GVPT170.

**GVPT339 Topics in Public Law (3 Credits)**
The study of topics in public law.
**Repeatable to:** 6 credits if content differs.

**GVPT349 Topics in Political Philosophy (3 Credits)**
The study of topics in political philosophy.
**Repeatable to:** 6 credits if content differs.

**GVPT354 International Development and Conflict Management (3 Credits)**
Serves as the gateway course for the Minor in International Development and Conflict Management. Provides an introductory foundation in the theory and practice of international development and conflict management. Introduces the structures, key players, intersections, and main trends in the evolution of the fields. Explores causal factors that drive economic growth, poverty, inequality, and conflict, as well as the resources, methods, and tools available to track and address these issues.
**Restriction:** Sophomore standing or higher; and must be in one of the following minor programs (International Development and Conflict Management; Global Engineering Leadership; Global Poverty, Global Terrorism Studies) or have permission of the Center for International Development, or must be in the Government and Politics major with permission of the Government and Politics department.
**Additional Information:** Students enrolled in MIDCM are expected to take the course during the Fall semester after admission to the program.

**GVPT355 Capstone in International Conflict Management (3 Credits)**
Serves as one of the two capstone courses for the Minor in International Development and Conflict Management. Focuses on advanced theory and the practice and profession of international conflict management and is designed to provide students an introduction to, and a chance to engage with, a core set of practical skills relevant to the field.
**Prerequisite:** GVPT354.
**Restriction:** Enrollment is restricted to students in the Minor in International Development and Conflict Management; and sophomore standing or higher; and permission of BSOS-Government & Politics department.

**GVPT356 Capstone in International Development (3 Credits)**
Serves as one of the two capstone courses for the Minor in International Development and Conflict Management. Focuses on advanced theory and the practice and profession of international development and is designed to provide students an introduction to, and a chance to engage with, a core set of practical skills relevant to the field.
**Prerequisite:** GVPT354.
**Restriction:** Enrollment is restricted to students in the Minor in International Development and Conflict Management; and sophomore standing or higher; and permission of BSOS-Government & Politics department.

**GVPT358 Study Abroad Seminar in Political Science (3 Credits)**
The study of topics in political science.
**Repeatable to:** 9 credits if content differs.

**GVPT359 Topics in Comparative Politics (3 Credits)**
The study of topics in comparative politics.
**Repeatable to:** 6 credits if content differs.

**GVPT360 International Negotiations (3 Credits)**
A study of the complexities of international negotiation and cross-cultural decision-making. Students will apply advanced computer technology in an interactive simulation involving actual negotiations.
**Prerequisite:** GVPT200.

**GVPT368 Special Topics in Government and Politics (3 Credits)**
The study of topics in government and politics.
**Repeatable to:** 6 credits if content differs.

**GVPT368C Asian American Politics (3 Credits)**
Students will gain a greater understanding of 1) the role of Asian Americans in US politics, 2) the political attitudes and behaviors of Asian Americans and 3) how to conduct research on Asian American politics. Though the class will concentrate on Asian Americans, issues related to Asian American politics will be examined within the larger context of America's multicultural political landscape.
**Cross-listed with:** AAST443, AMST498J.
**Credit Only Granted for:** AAST498T, AAST443, GVPT368C or AMST 498J.
**Formerly:** AAST498T.

**GVPT373 Geographic Information Systems for Redistricting (3 Credits)**
Local, state and federal governments must periodically draw and redraw political boundaries to account for shifts in the population. This course will be an introduction and overview of district drawing and redistricting as an important application of GIS research in political science and public policy. This class will equip students to use convenient GIS tools to create and consider alternative district scenarios to find the best possible solution. After finishing this class students will be able to draw districts to define police beats, sales territories, congressional and state legislative districts, school and fire protection districts, and numerous other boundaries.Recommended: at least one course in statistics.
**Prerequisite:** GVPT392.
**Recommended:** at least one course in statistics.

**GVPT376 Applied Field Research in Government and Politics (3-6 Credits)**
Students in this course participate as interns in an agency of government or in some other appropriate political organization. Assignments are arranged to provide students with insights into both theoretical and practical aspects of politics. Under the tutelage of the host agency and an academic advisor, students conduct a major research project of mutual interest to the student and his or her host agency in the field of government and politics.
**Prerequisite:** GVPT170.
**Corequisite:** GVPT377.

**GVPT377 Experiential Learning: Government and Politics Internship Program (3 Credits)**
The application of major concepts of political science to the realities of the political process. The course connects internship experiences with larger themes of political science. Students must be admitted to the GVPT Internship Program.
**Prerequisite:** GVPT170.
**Credit Only Granted for:** GVPT377 or GVPT388W.
**Formerly:** GVPT388W.

**GVPT379 Topics in American Politics (3 Credits)**
The study of topics in American politics.
**Repeatable to:** 6 credits if content differs.

**GVPT386 Experiential Learning (3-6 Credits)**
**Restriction:** Permission of BSOS-Government & Politics department; and junior standing or higher.

**GVPT388 Topical Investigations (1-3 Credits)**
Independent research and writing on selected topics in government and politics.
**Prerequisite:** 1 course from GVPT200-299 course range.
**Repeatable to:** 6 credits if content differs.

**GVPT389 Experiential Learning II (3-6 Credits)**
Experiential credit for working in government & politics related internships, research, and teaching opportunities.
**Restriction:** Permission of BSOS-Government & Politics department; and junior standing or higher.
**Repeatable to:** 6 credits.

**GVPT390 Game Theory (3 Credits)**
Introduction to game theory with applications to political science, economics and sociology. Topics include preference theory, expected utility theory, Nash equilibria, subgame perfection, repeated games, folk theorems, and evolutionary stability.
**Restriction:** Must not have completed ECON414.
**Credit Only Granted for:** GVPT399A, GVPT390, CMSC474 or ECON414.
**Formerly:** GVPT399A.

**GVPT392 Introduction to Geographic Information Systems for Social Science Research (3 Credits)**
Introduction to the use of Geographic Information Systems for conducting research in the social sciences. Overview of spatially embedded nature of many social science phenomena and content of theories common to spatial thinking. Students will obtain hands-on experience with various GIS tools and methods most frequently employed by social scientists.
**Credit Only Granted for:** GVPT392, GVPT429A, or GVPT729D.
**Formerly:** GVPT429A, GVPT729D.

**GVPT393 Intermediate Geographic Information Systems (3 Credits)**
Part II of a two-semester course that integrates Geographic Information Systems with social science research. Lectures and readings will motivate the use of GIS by exposure to research applications in international relations; political and non-profit fundraising; environmental justice; public health; race relations; business and economics.
**Prerequisite:** Must have completed one GIS course and at least one course in statistics.
**Credit Only Granted for:** GVPT368I, GVPT393 or GEOG498W.
**Formerly:** GVPT368I.

**GVPT396 Introduction to Honors Research (3 Credits)**
A required course for all honors students designed to emphasize library research, methodology, and writing skills in political science and political philosophy. A written proposal, bibliography and research design for an honors paper required of all students as a final project.
**Restriction:** Must be in Government & Politics Honors Program; and must have permission of the Government & Politics Honors Program.

**GVPT397 Honors Research (3 Credits)**
Individual reading and research. Preparation of an original paper.
**Prerequisite:** GVPT396.
**Restriction:** Must be in Government & Politics Honors Program.

**GVPT399 Seminar in Government and Politics (3 Credits)**
Reading, research, discussion, analysis, and writing in the area of politics. Both substantive issues and methodological approaches will be considered. Primarily for government and politics undergraduate majors.
**Prerequisite:** 1 course from GVPT200-299 course range.

**GVPT402 International Law (3 Credits)**
A study of the basic character, general principles and specific rules of international law, with emphasis on recent and contemporary trends in the field and its relation to other aspects of international affairs.
**Prerequisite:** GVPT200.
**Restriction:** Must be in Government & Politics program; and junior standing or higher.

**GVPT404 Political Economy of Foreign Aid (3 Credits)**
The world spends hundreds of billions of dollars on foreign aid every year. The effects of this aid spending are controversial. Research supports both pessimistic and optimistic views of foreign aid's effectiveness, with little consensus. Where does aid money go? What are the motivations of aid donors? Is foreign aid effective at achieving its goals? Why or why not? This course is designed to survey the promise and the challenges of foreign aid as a policy tool. The first half of the course will focus on the motivations and goals of foreign aid. We will consider various foreign aid donors, such as countries, institutions, and individuals, to understand the motivations behind and effects of foreign aid. We will create a typology of foreign aid agendas, motivations, and donors. The second half of the course will consider the challenges specific to foreign aid. This includes both technical challenges and political challenges. We will consider the strategies that aid donors and organizations have taken to try to overcome these challenges.
**Recommended:** GVPT200.
**Restriction:** Must be in Government & Politics or Government & Politics: International Relations program.
**Credit Only Granted for:** GVPT409R or GVPT404.
**Formerly:** GVPT409R.

**GVPT406 International Organizations (3 Credits)**
A basic introduction to the full range of international organizations that have come into being over the past century and one-half, including those that aspire to be universal or global, those with a geopolitical or regional focus, and those that address specific structural or functional areas of human endeavor or issue areas.
**Prerequisite:** GVPT200.
**Restriction:** Must be in Government & Politics program; and junior standing or higher. Or must be in Government & Politics: International Relations program; and junior standing or higher.

**GVPT407 International Political Economy (3 Credits)**
Introduces the field of international political economy, which analyzes the ways in which economic and political changes produce both economic and political reactions.
**Prerequisite:** GVPT200.
**Restriction:** Must be in Government & Politics program; and junior standing or higher.

**GVPT409 Seminar in International Relations and World Politics (3 Credits)**
Reading, writing, and research on topics in international relations and world politics. Both substantive issues and methodological approaches will be considered.
**Prerequisite:** GVPT200.
**Restriction:** Must be in one of the following programs (Government & Politics; Government & Politics: International Relations) ; and junior standing or higher.
**Repeatable to:** 9 credits if content differs.

**GVPT410 Politics of Nationalist and Ethnic Conflict (3 Credits)**
An examination of the major causes and consequences of ethnic, nationalist, and separatist conflict. The course will focus on both theories of ethnicity and nationalism, as well as theories of conflict related to these issues. The course will also explore empirical trends in ethnic and nationalist politics.
**Prerequisite:** GVPT200.
**Restriction:** Must be in one of the following programs (Government & Politics; Government & Politics: International Relations).
**Credit Only Granted for:** GVPT409M or GVPT410.
**Formerly:** GVPT409M.

**GVPT411 Conflict in the International System (3 Credits)**
In this course, we will examine conflict, peace, and conflict resolution in contemporary international politics. We will interrogate what we mean by concepts such as peace, conflict, and violence, the different forms that these phenomena can take, and how we can measure their occurrence. We will discuss theoretical explanations for why individuals and groups have disputes, why these actors choose to use violence (or not) in these disputes, and ways in which violent disputes can be resolved peacefully. We will examine these arguments in a detailed study of conflicts in the Middle East, as well as by evaluating published articles that examine the effectiveness of conflict management strategies such as peacekeeping.
**Prerequisite:** GVPT200.
**Restriction:** Must be in Government & Politics or Government & Politics: International Relations program.
**Credit Only Granted for:** GVPT409P or GVPT411.
**Formerly:** GVPT409P.

**GVPT413 Peace, Justice, and Conflict Resolution (3 Credits)**
An examination of classic and contemporary perspectives on peace, justice, and conflict resolution after armed conflict. The goal of this course is to expose students to the advantages, risks, and challenges of the most prominent methods of conflict mitigation and resolution, including mediation and arbitration; peacekeeping, peacemaking, and peacebuilding; the protection of civilians, Responsibility to Protect, and humanitarian assistance; elections, democratization, and power-sharing; and transitional reconciliation and justice. We will do this by reading, discussing, and synthesizing classic and cutting-edge Political Science research on these topics.
**Recommended:** GVPT200.
**Restriction:** Must be in Government & Politics or Government & Politics: International Relations program.
**Credit Only Granted for:** GVPT409A or GVPT413.
**Formerly:** GVPT409A.

**GVPT414 International Relations of East Asia (3 Credits)**
An examination of international relations in East Asia, focusing mostly on Northeast Asia. The course will provide some background on the evolution of international politics in the region over the past several decades, and will examine several contemporary issues--including the North Korean nuclear issue, the relationship across the Taiwan Strait, and maritime disputes in the East and South China Seas--in depth.
**Prerequisite:** GVPT200.
**Restriction:** Must be in Government & Politics or Government & Politics: International Relations program.
**Credit Only Granted for:** GVPT409E or GVPT414.
**Formerly:** GVPT409E.

**GVPT417 Seminar in Advanced Topics in Environmental Policy Analysis (3 Credits)**
A series of critical tools and methods used to analyze environmental policy. This class should be of interest to students who are either considering a career or graduate studies in environmental protection.
**Prerequisite:** GVPT273.
**Restriction:** Must be in one of the following programs (Government & Politics; Environmental Sci&Policy-Env Politics & Policy).
**Credit Only Granted for:** GVPT419B or GVPT417.
**Formerly:** GVPT419B.

**GVPT419 Seminar in Public Policy (3 Credits)**
Reading, writing, and research on topics in public policy. Both substantive issues and methodological approaches will be considered.
**Prerequisite:** GVPT241 and GVPT170.
**Recommended:** GVPT270.
**Restriction:** Must be in Government & Politics program.
**Repeatable to:** 6 credits if content differs.

**GVPT420 The Logic and Practice of Measuring Political Behavior (3 Credits)**
Introduction to concepts and practices used for measuring political behavior. Political analysis is an increasingly quantitative field. It is crucial for students of political behavior to learn how to define concepts in concrete ways, examine different methods of measuring concepts, learn how to test the quality of chosen measures, learn how to construct richer measures out of multiple questions, and finally how to examine the relationship between multiple measures of similar concepts. Common pitfalls, errors, bias, and ethics will be examined along the way.
**Prerequisite:** GVPT201.
**Restriction:** Must be in Government & Politics program; or must be in Government & Politics: International Relations program.

**GVPT421 Advanced Quantitative Methods (3 Credits)**
Advanced quantitative methods for political science research.
**Prerequisite:** GVPT201.
**Restriction:** Must be in one of the following programs (Government & Politics; Government & Politics: International Relations).

**GVPT422 Quantitative Political Analysis (3 Credits)**
Introduction to quantitative methods of data analysis, including selected statistical methods, block analysis, content analysis, and scale construction.
**Prerequisite:** GVPT241 and GVPT170.
**Recommended:** GVPT220.
**Restriction:** Must be in Government & Politics program.

**GVPT423 Elections and Electoral Behavior (3 Credits)**
An examination of various topics relating to elections; the focus includes the legal structure under which elections are conducted, the selection and nomination process, the conduct of election campaigns, and patterns of political participation and voting choice in different types of elections.
**Prerequisite:** GVPT241 and GVPT170.
**Restriction:** Must be in Government & Politics program.

**GVPT424 Quantitative Study of International Relations (3 Credits)**
A comprehensive introduction to the quantitative study of international conflict. Students will perform statistical analysis of international conflict data using the R software platform.
**Prerequisite:** GVPT201.
**Restriction:** Must be in one of the following programs (Government & Politics; Government & Politics: International Relations).
**Credit Only Granted for:** GVPT409H (Fall 2015 and Fall 2016) or GVPT424.
**Formerly:** GVPT409H (Fall 2015 and Fall 2016).

**GVPT428 Topics in Formal Theories of Political Behavior and Politics (3 Credits)**
An evaluation of theories of political behavior such as game, social choice and voting theory, and their applications to problems of distribution and social justice, community organizing, responsive public policy, institutional design, and alliance and coalition formation.
**Prerequisite:** GVPT241 and GVPT221.
**Restriction:** Must be in Government & Politics program.
**Repeatable to:** 6 credits if content differs.

**GVPT429 Problems in Political Behavior (3 Credits)**
The problem approach to political behavior with emphasis on theoretical and empirical studies on selected aspects of the political process.
**Prerequisite:** GVPT241.
**Recommended:** GVPT220.
**Restriction:** Must be in Government & Politics program.

**GVPT431 Introduction to Constitutional Law (3 Credits)**
A systematic inquiry into the general principles of the American constitutional system, with special reference to the role of the judiciary in the interpretation and enforcement of the federal constitution.
**Prerequisite:** GVPT170 and GVPT331.
**Restriction:** Must be in one of the following programs (Government & Politics; Government & Politics: International Relations) ; and junior standing or higher.

**GVPT432 Civil Rights and the Constitution (3 Credits)**
A study of civil rights in the American constitutional context, emphasizing freedom of religion, freedom of expression, minority discrimination, and the rights of defendants.
**Prerequisite:** GVPT170 and GVPT331.
**Restriction:** Must be in one of the following programs (Government & Politics; Government & Politics: International Relations).

**GVPT439 Seminar in Public Law (3 Credits)**
Reading, writing, and research on topics in public law. Both substantive issues and methodological approaches will be considered.
**Prerequisite:** GVPT241 and GVPT170.
**Recommended:** GVPT331.
**Restriction:** Must be in Government & Politics program; and junior standing or higher.
**Repeatable to:** 6 credits if content differs.

**GVPT442 History of Political Theory--Medieval to Recent (3 Credits)**
A survey of the principal theories set forth in the works of writers from Machiavelli to Nietzsche.
**Prerequisite:** GVPT241.
**Restriction:** Must be in Government & Politics program.

**GVPT443 Contemporary Political Theory (3 Credits)**
A survey of the principal political theories and ideologies set forth in the works of writers from Karl Marx to the present.
**Prerequisite:** GVPT241.
**Restriction:** Must be in Government & Politics program.

**GVPT445 Marxism and Postmarxism (3 Credits)**
The study of Marxist thought and an assessment of the critical transformations and reassessments of the theory and practice of Marxism.
**Restriction:** Must be in a major within BSOS-Government & Politics department.

**GVPT448 Non-Western Political Thought (3 Credits)**
Examination of works by major authors and general themes of political thought originating in Asia, the Middle East, and Africa. This is not a survey of all non-Western political thought, but a course to be limited by the professor with each offering.
**Prerequisite:** GVPT241.
**Restriction:** Must be in Government & Politics program.
**Additional Information:** Permission of department required for repeat.

**GVPT449 Seminar in Political Philosophy (3 Credits)**
Reading, writing, and research on topics in political philosophy. Both substantive issues and methodological approaches will be considered.
**Prerequisite:** GVPT241.
**Restriction:** Must be in Government & Politics program.
**Repeatable to:** 6 credits if content differs.

**GVPT454 Seminar in the International Relations of China (3 Credits)**
Explores the foreign relations behavior of the People's Republic of China, with focus on the contemporary era.
**Prerequisite:** GVPT200.
**Restriction:** Must be in Government & Politics program; and junior standing or higher. Or must be in Government & Politics: International Relations program; and junior standing or higher.

**GVPT456 The Politics of Terrorism (3 Credits)**
Examination of the definition, causes and organization of terrorist activity, along with key domestic and international counter- and anti-terrorism responses. Special emphasis on challanges and opportunities to the scientific study of terrorism.
**Prerequisite:** GVPT200.
**Restriction:** Must be in Government & Politics program; or must be in Government & Politics: International Relations program.
**Credit Only Granted for:** GVPT456 or GVPT459T.
**Formerly:** GVPT459T.

**GVPT457 American Foreign Relations (3 Credits)**
The principles and machinery of the conduct of American foreign relations and an analysis of the major foreign policies of the United States.
**Prerequisite:** GVPT200.
**Restriction:** Must be in Government & Politics program; and junior standing or higher.

**GVPT458 Special Topics in Study Abroad IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**GVPT459 Seminar in Comparative Politics (3 Credits)**
Reading, writing, and research on topics in comparative politics. Both substantive issues and methodological approaches will be considered.
**Prerequisite:** GVPT200; and (GVPT282 or GVPT280).
**Restriction:** Must be in Government & Politics program; or must be in Government & Politics: International Relations program.
**Repeatable to:** 6 credits if content differs.

**GVPT460 State Politics and Government (3 Credits)**
A study of the structure, procedures and policies of state governments with special emphasis on intergovernmental relationships, and with illustrations from Maryland governmental arrangements.
**Prerequisite:** GVPT241 and GVPT170.
**Recommended:** GVPT260.
**Restriction:** Must be in Government & Politics program; or must be in Government & Politics: International Relations program.

**GVPT461 Local Politics and Government (3 Credits)**
An introduction to local government and politics in the U.S. context. The course explores the evolution of local jurisdictions, particularly cities, and the politics of local level decision making.
**Prerequisite:** GVPT170.
**Restriction:** Must be in Government & Politics program; or must be in Government & Politics: International Relations program.
**Credit Only Granted for:** GVPT461 or GVPT479L.
**Formerly:** GVPT479L.

**GVPT473 The U.S. Congress (3 Credits)**
A detailed survey of lawmaking and the legislative process, emphasizing the U.S. Congress, and its members.
**Prerequisite:** GVPT241 and GVPT170.
**Restriction:** Junior standing or higher. And must be in Government & Politics program; or must be in Government & Politics: International Relations program.

**GVPT474 Political Parties (3 Credits)**
A descriptive and analytical examination of American political parties, nominations, elections, and political leadership.
**Prerequisite:** GVPT241 and GVPT170.
**Restriction:** Must be in Government & Politics program.

**GVPT475 The Presidency and the Executive Branch (3 Credits)**
An examination of the U.S. presidency in historical and contemporary perspective: nomination and electoral politics and the president's place in policy-making, administration, and public opinion.
**Prerequisite:** GVPT241 and GVPT170.
**Restriction:** Must be in Government & Politics program; and junior standing or higher.

**GVPT476 The Business Government Relationship (3 Credits)**
Examines the structures, process, and outcomes of business and government and the politics and products of their cooperative-adversarial relationships in the United States. The design integrates interest group and administrative politics and the public policy process.
**Prerequisite:** GVPT241 and GVPT170.
**Recommended:** GVPT270.
**Restriction:** Must be in Government & Politics program.

**GVPT477 Voting and Participation (3 Credits)**
A study of the factors that influence individual vote choice and voter participation in the U.S. The course will introduce political science research pertaining to both topics and will engage current controversies over such things as political campaign laws and the various state and federal rules that govern election administration.
**Prerequisite:** GVPT170 and GVPT241.
**Restriction:** Must be in Government & Politics program.

**GVPT479 Seminar in American Politics (3 Credits)**
Reading, writing, and research on topics in American politics. Both substantive issues and methodological approaches will be considered.
**Prerequisite:** GVPT241 and GVPT170.
**Restriction:** Must be in Government & Politics program; and junior standing or higher.
**Repeatable to:** 6 credits if content differs.

**GVPT481 Government and Administration of Russia and the States of the Former Soviet Union (3 Credits)**
A comparative study of the governmental systems and political processes of the states of the former Soviet Union.
**Prerequisite:** GVPT200; and (GVPT282 or GVPT280).
**Restriction:** Must be in Government & Politics program.

**GVPT482 Government and Politics of Latin America (3 Credits)**
A comparative study of the governmental systems and political processes of the Latin American countries.
**Restriction:** Must be in Government & Politics program; or must be in Government & Politics: International Relations program.

**GVPT484 Government and Politics of Africa (3 Credits)**
A comparative study of the governmental systems and political processes of the African countries, with special emphasis on the problems of nation-building in emergent countries.
**Prerequisite:** GVPT282 or GVPT280.
**Restriction:** Must be in one of the following programs (Government & Politics; Government & Politics: International Relations).

**GVPT485 Government and Politics of the Middle East (3 Credits)**
A comparative study of the governmental systems and political processes of Middle Eastern countries, with special emphasis on the problems of nation-building in emergent countries.
**Prerequisite:** GVPT200; and (GVPT282 or GVPT280).
**Restriction:** Must be in Government & Politics program.
**Credit Only Granted for:** GVPT485 or GVPT459E.
**Formerly:** GVPT459E.

**GVPT487 Government and Politics of China (3 Credits)**
Discussion of major issues in the study of the domestic politics of the People's Republic of China.
**Restriction:** Must be in one of the following programs (Government & Politics; Government & Politics: International Relations) ; and junior standing or higher.
**Credit Only Granted for:** GVPT359A or GVPT487.
**Formerly:** GVPT359A.

# HACS - ACES-Cybersecurity

**HACS100 Foundations in Cybersecurity I (2 Credits)**
Interdisciplinary foundational course of the ACES program. Through lectures, lab activities, and discussions, students will learn and practice various aspects of cybersecurity. Weekly technical lectures will introduce students to the operating system UNIX. Students will partner with the Division of Information Technology in a project to engage the University of Maryland community in a cyber- hygiene and cyber-ethics campaign based on the concepts learned in class.
**Restriction:** Must be a first-semester student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program.

**HACS101 Applied Cybersecurity Foundations (2 Credits)**
Prepares students for team research that will be conducted in HACS 200. Students gain an understanding across the breadth of cybersecurity including system monitoring, networking basics and penetration testing. An applied approach to statistics is also included to prepare students to assess the data collected for their research projects. The course is conducted with a hands-on approach applying virtual environments to practice the concepts learned in the technical lectures each week.
**Prerequisite:** Minimum grade of C- in HACS100.
**Restriction:** Must be a second-semester student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program.

**HACS200 Applied Cybersecurity Foundations II (2 Credits)**
Students will apply the skills learned in HACS 100 and 101 to practice cybersecurity research through team led projects employing honeypots, carrying that project through all stages - proposal, implementation, and analysis. Weekly lectures will supplement project work by addressing trends observed in honeypot attacks and protections needed, along with data collection and analysis tools, and other foundational cybersecurity concepts.
**Prerequisite:** Minimum grade of C- in HACS101.
**Restriction:** Must be a third-semester student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program.

**HACS201 Introduction to UNIX (1 Credit)**
Introduction to the operating system UNIX through lectures and hands-on assignments.
**Restriction:** Must be a first-year student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program.
**Credit Only Granted for:** HACS201 or CMSC216.
**Additional Information:** Required course for students who have not completed the ACES Living-Learning Program or taken CMSC216.

**HACS202 Group Project in Cybersecurity (3 Credits)**
The group project in this course will combine technical, analytical, and communication skills, further engaging students in the practice of cybersecurity. Students will learn about design concepts and data analysis as they engage in a team project designing, deploying, and collecting and analyzing data from a honeypot. The hands-on nature of the course will give students experiential insight about how and why attackers attack and how to engage in protective measures to prevent attacks.
**Restriction:** Must be a first-year student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program; and cannot have been an ACES Living-Learning Program student (i.e., have taken HACS100, HACS101 and HACS200).

**HACS208 Seminar in Cybersecurity (3 Credits)**
Explores various lenses of cybersecurity in order to promote an interdisciplinary understanding of the field. Although each section may focus on a different topic, each integrates active student engagement, communication, critical communication, critical thinking, and teamwork.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program.
**Repeatable to:** 6 credits if content differs.

**HACS208A Accounting and Economic Aspects of Cybersecurity (3 Credits)**
In today's interconnected digital world, cybersecurity has become one of the most important issues confronting organizations in both the private and public sectors of an economy. Indeed, cybersecurity is a national and economic security priority in countries throughout the world. This is an interdisciplinary Honors Seminar offered as part of UMD's ACES program. The primary objective of this course is to discuss the relationships among accounting, economics and cybersecurity, with a focus on the important roles of accounting and economics in understanding the issues related to cybersecurity. A basic framework for assessing the interactions among accounting, economics, and cybersecurity will be developed and discussed. A secondary objective of the course is to assist ACES students in developing their ability to conduct original and applied research on topics related to "accounting and economic aspects of cybersecurity."
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program.

**HACS208E Introduction to Reverse Engineering (3 Credits)**
An introduction to software reverse engineering tools and methodologies. Fundamental topics will be introduced: compilers, linkers, loaders, assembly language, as well as static and dynamic analysis tools. We will motivate some reasons for software reverse engineering and examine the background material necessary for an understanding of the subject. This will include computer architecture and low-level systems programming, as well as an introduction to x86_64 assembly language. We will apply this newly acquired knowledge while learning about static and dynamic analysis tools used by practitioners of software reverse engineering.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program.

**HACS208I Security Incident Handling and Management (3 Credits)**
Examines the many roles, capabilities, organizations, and objectives involved in security incident handling and management. Core course content includes three major components: learning about the skill sets that people use, participating in role playing exercises that increasingly build upon this knowledge, and finally conducting exercises in a lab environment simulating security incident discovery, handling, and management.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program.

**HACS208M Project Management Techniques for IT Professionals (3 Credits)**
This course aims to build an in-depth understanding of project management methodologies for IT professionals. The course explores the application of Project Management Institute (PMI) guidelines for managing projects and PMP certification. Topics include an overview of PMI standards and project management, various roles in managing technical projects, work breakdown structures, security considerations, risk assessment, testing, and implementation. The students will have an opportunity to learn how to apply PMI guidelines in a real world software development project.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program.

**HACS208N Digital Forensics (3 Credits)**
Explores the various fields of digital forensics, such as memory, hard drive, and network traffic analysis. This course covers the legalities involved with forensic investigations and the wide variety of digital forensics tools, including both open source and proprietary. This course includes the different types of forensic artifacts that can be acquired and analyzed and review the careers and certifications relevant to the field.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program.

**HACS208P Beyond Technology, the Policy Implications of Cyberspace (3 Credits)**
Explores the key issues facing policy makers attempting to manage the problem of cybersecurity from its technical foundations to the domestic and international policy considerations surrounding governance, response, and critical infrastructure risk management. The course is designed for students with little to no background in information technology, and will provide the principles to understand the current debates shaping a rapidly evolving security landscape.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program.

**HACS208Z Methods for Solving (And not Solving) Puzzles (3 Credits)**
Surveys modern problems from different domains in computer science and cybersecurity to train our minds to appropriately approach puzzles we encounter in the future. This course covers graph theory, including what a graph is and the kinds of objects it can model, connectivity types, and vertex/edge covers algorithms. This course covers computer networks, including the models used for network stacks and what algorithms are used to solve difficult problems present in our current networks. This course covers algorithm analysis, including greedy algorithms, big O complexity, and how to analyze the capabilities and limitations of an algorithm. This course introduces cryptography, including the difference between public-key and symmetric-key cryptography, how RSA works, and the cryptanalysis of well-known cryptosystems.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program.

**HACS279 Undergraduate Research in Cybersecurity (1-3 Credits)**
The Advanced Cybersecurity Experience for Students (ACES) program encourages its students to engage in research in order to gain greater insight into a specific area within cybersecurity, obtain an appreciation for the subtleties and difficulties associated with the production of knowledge and fundamental new applications, and to prepare for graduate school and the workforce.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program; and permission of UGST-HCOL-ACES Cybersecurity Program.
**Repeatable to:** 6 credits if content differs.

**HACS287 Undergraduate Research in Cybersecurity (3 Credits)**
The Advanced Cybersecurity Experience for Students (ACES) program encourages its students to engage in research in order to gain greater insight into a specific area within cybersecurity, obtain an appreciation for the subtleties and difficulties associated with the production of knowledge and fundamental new applications, and to prepare for graduate school and the workforce.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program; and permission of UGST-HCOL-ACES Cybersecurity Program.

**HACS297 Cybersecurity Experience Reflection (3 Credits)**
Cybersecurity experience is defined as an experiential learning activity either with a University of Maryland entity (such as the Division of Information Technology, the ACES competition team or in an ACES outreach program), or with an external organization that will provide valuable, hands-on experience to supplement the knowledge learned in the other ACES coursework.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program; and permission of UGST-HCOL-ACES Cybersecurity Program.

**HACS318 Cybersecurity Professionals Colloquium Series (1 Credit)**
The Cybersecurity Professionals Colloquium Series explores various lenses of cybersecurity in order to promote an interdisciplinary understanding of the field. The colloquium series consists of guest lectures of cybersecurity professionals. In written assignments, students will not only summarize the lecture content but also reflect on the significance of the lecture content for the field of cybersecurity.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program.
**Repeatable to:** 2 credits.

**HACS402 Applied Security Analysis and Visualization (3 Credits)**
Focuses on exploratory and statistical data analysis, data and information visualization, and the presentation and communication of analysis results. These topics will be presented and explored in the context of and with applications to cybersecurity related data.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program.

**HACS408 Advanced Seminar in Cybersecurity (3 Credits)**
Explores various lenses of cybersecurity in order to promote an interdisciplinary understanding of the field. Although each section may focus on a different topic, each integrates active student engagement, communication, critical communication, critical thinking, and teamwork.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program.
**Repeatable to:** 9 credits if content differs.

**HACS408C Interpersonal Cyber Communications (3 Credits)**
Designed to prepare students to participate in culturally responsible and environmentally appropriate communication in the workforce. Students will explore the industry standards for writing technical reports, as well as the variances between persuasive, team, written, and oral communication styles.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program.

**HACS408L Analytical and Forensic Techniques for Cybersecurity (3 Credits)**
Explores forensic artifacts contained in digital devices, security mechanisms available to protect digital devices and mechanisms available to cybersecurity professionals for analysis of digital devices. Topics include file structure and recovery of IoT and cell phone forensic data, network data capture and analysis, enterprise mobile device management analysis and forensic investigation of digital devices (IoT, telematics systems, etc.) that interact with cell phone and other devices. Incident response, timeline analysis, and detection and analysis of artifacts will be explored in a hands-on and lab-centric course using a variety of open-source tools and commercial cloud services.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program.

**HACS408M Introduction to Cyber Threats and Risk Management (3 Credits)**
Provides an exploration of cyber risk management and present-day cyber threats, their impacts, and their mitigations. Students will take a multi-disciplinary approach to understanding threats and risks including the technical, policy, and social aspects. This course is guided by real-world cyber threats and examples.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program.

**HACS408O Internet of Things Security (3 Credits)**
This increasingly interconnected world brings a need for understanding cybersecurity challenges associated with embedded devices and systems. This course will expose students to topics in Internet of Things (IoT) and Cyber Physical System (CPS) device types, IoT/CPS threat categories, security services, distributed networking, activity privacy, and intrusion detection for embedded environments. In addition to individual homework assignments, students will participate in a semester long group project involving research, design, and implementation.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program.

**HACS408T Penetration Testing (3 Credits)**
A hands-on, technically rigorous experience that prepares students for real-world work in penetration testing and offensive security. This course will allow students to gain proficiency and become comfortable using the tools, techniques, and methodologies that represent the state of the art in penetration testing today. Students should be comfortable on the command line, and a technical exposure to networking and basic proficiency in some scripting language (Bash, Ruby, or Python) is expected.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program.

**HACS408V Data Analysis and Visualization for Cybersecurity (3 Credits)**
Focuses on exploratory and statistical data analysis, data and information visualization, and the presentation and communication of analysis results. These topics will be presented and explored in the context of and with applications to cyber security related data. Examples and illustrations will often involve the R programming language, but prior experience with R is not required and submitted work may involve the use of other languages and tools at times.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program.

**HACS479 Undergraduate Research in Cybersecurity (1-3 Credits)**
The Advanced Cybersecurity Experience for Students (ACES) program encourages its students to engage in research in order to gain greater insight into a specific area within cybersecurity, obtain an appreciation for the subtleties and difficulties associated with the production of knowledge and fundamental new applications, and to prepare for graduate school and the workforce.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program; and permission of UGST-HCOL-ACES Cybersecurity Program.
**Repeatable to:** 6 credits if content differs.

**HACS487 Undergraduate Research in Cybersecurity (3 Credits)**
A semester-long, individualized academic research project. Students work with a faculty supervisor to design and research an original topic. Students engage in research to gain greater insight into a specific area within cybersecurity, obtain an appreciation for the subtleties and difficulties associated with the production of knowledge and fundamental new applications, and prepare for graduate school and/or the workforce.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program; and permission of UGST-HCOL-ACES Cybersecurity Program.

**HACS497 Cybersecurity Experience Reflection (3 Credits)**
Cybersecurity experience is defined as an experiential learning activity either with a University of Maryland entity or with an external organization that will provide valuable, hands-on experience to supplement the knowledge learned in other ACES coursework. This course is intended to help students reflect on their cybersecurity experience and to learn from others' cybersecurity experiences. It is also intended to help students gain professional skills that will aid in their future career.
**Prerequisite:** Students may enroll concurrently with or after completing a cybersecurity related internship experience of at least 135 hours.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program; and must not have taken HACS297.
**Credit Only Granted for:** HACS297 or HACS497.

**HACS498 Cybersecurity Group Problem Solving (3 Credits)**
The Advanced Cybersecurity Experience for Students (ACES) program encourages its students to engage in team problem solving activities in order to gain greater insight into a specific area within cybersecurity and to obtain an appreciation for the subtleties and difficulties associated with these activities in order to prepare students for graduate school and the workforce. Students engage in a semester long problem solving or development project under the mentorship of a industry specialist and with the guidance of university faculty. Through the exercise the students will develop teamwork experience and professional communication skills in addition to experience of the project itself. The project might be evaluation, creation, testing or analysis of some area of cybersecurity as needed by the mentor-sponsor. A contract of what will be accomplished is required must be agreed upon by the mentor, the student and the ACES leadership before the project can begin.
**Restriction:** Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program; and permission of UGST-HCOL-ACES Cybersecurity Program.
**Repeatable to:** 6 credits.

# HBUS - Interdisciplinary Business Honors

**HBUS100 The Future of Work: Interdisciplinary Foundations and Horizons of Business (3 Credits)**
What should the future of work look like? Traditional hierarchies have come under increased scrutiny today for many reasons especially because it may not promote diversity, equity, and inclusion in the workplace. Moreover, they may not encourage experimentation, innovation, and business success. Not surprisingly then, companies are redefining what the future of work should look like. What are the shared responsibilities of an employer and employee? How can technology improve productivity and promote equity? What culture should businesses promote to welcome all employees and ensuring accountability? This course will address these and related questions.

**HBUS105 The Future of Analysis: Making Data Driven Decisions in Business (3 Credits)**
Students will address questions regarding how business is being shaped by the increased use of data. The course draws from various quantitative, computation, and technical fields to develop a big picture understanding of data science in business. Through examples and applications, students will address the challenging questions related to artificial intelligence, data science bias, and privacy.
**Prerequisite:** HBUS100.

**HBUS200 Business and Deliberation: Innovation and Equity in Conditions of Uncertainty and Diversity (3 Credits)**
How can managers better promote a diversity of thought within their organization? When business leaders tap into the plurality of perspectives among their employees, they can improve on many dimensions. Unfortunately, many businesses fail to create a culture of inclusion that puts them at a disadvantage when managing uncertainty. How can managers better listen to internal and external stakeholders? How can these diverse perspectives better inform business decision making? How can businesses with multiple objectives - such as triple bottom line companies - better engage with their employees, customers, and corporate partners? This course will address these and related questions.
**Prerequisite:** HBUS100 and HBUS105.

**HBUS205 Capstone in Interdisciplinary Business (3 Credits)**
As the capstone course in the Interdisciplinary Business Honors (IBH) Program, this course will give students the opportunity to apply what they have learned in the IBH program to a real-world company. This company will help present students with an opportunity to address a pressing challenge
**Prerequisite:** HBUS100, HBUS105, and HBUS200.
**Restriction:** Must be in the Interdisciplinary Business Honors Program.

# HDCC - Design Cultures and Creativity

**HDCC105 Introduction to Design Cultures and Creativity I (3 Credits)**
History, concepts, and technologies of creative design expression, coupled with an introduction to development for particular platforms and devices.
**Restriction:** Must be in the Design Cultures and Creativity Honors College Living/Learning program.

**HDCC106 Seminar in Design Cultures & Creativity (3 Credits)**
Introduction to the methods and theory of design production, with emphasis on creative and expressive platforms.
**Restriction:** Must be in the Design Cultures and Creativity Honors College Living/Learning program.

**HDCC201 Capstone Proposal Through Design Thinking (1 Credit)**
Engages principles of design thinking to prepare second-year students in the Design Cultures and Creativity (DCC) program to create a proposal for their spring Capstone Project.
**Prerequisite:** HDCC105 and HDCC106.
**Restriction:** Must be in the Design Cultures and Creativity Honors College Living/Learning program.

**HDCC208 Seminar in Digital Cultures and Creativity (3 Credits)**
An advanced seminar in specific aspects of digital culture and creativity, designed to keep students abreast of the latest developments in new media and the online world. Possible topics include mobile gaming, digital storytelling, and electronic music.
**Prerequisite:** HDCC106 and HDCC105.
**Restriction:** Must be in the Digital Cultures and Creativity Honors College Living/Learning program.
**Repeatable to:** 6 credits if content differs.

**HDCC209 Capstone in Design Cultures and Creativity (3 Credits)**
Capstone for Design Cultures and Creativity in which students will develop their program capstone projects under the supervision of a faculty mentor, with regular checkpoints and presentations to track progress.
**Prerequisite:** HDCC208.
**Restriction:** Must be in the Design Cultures and Creativity Honors College Living/Learning program.
**Repeatable to:** 6 credits if content differs.

**HDCC379 Design Cultures and Creativity Independent Study (1-3 Credits)**
Involves research and/or creative scholarship directed by individual DCC faculty outside of the formal classroom structure.
**Prerequisite:** HDCC105.
**Restriction:** Must be enrolled in the Design Cultures and Creativity Honors College living-learning program; and permission of UGST-HCOL-Design Cultures & Creativity Program.
**Repeatable to:** 6 credits if content differs.

# HEBR - Hebrew

**HEBR102 Elementary Hebrew I-B (3 Credits)**
Continues HEBR101. Modern Israeli Hebrew. Emphasis on conversation. Study of linguistic structure and development of audio-lingual, writing and reading ability. Corresponds to the second half of HEBR111.
**Prerequisite:** HEBR101; or must have placement by the Hebrew coordinator.
**Restriction:** Must not have completed HEBR111.
**Credit Only Granted for:** (HEBR101 and HEBR102) or HEBR111.

**HEBR103 Elementary Hebrew II-A (3 Credits)**
Continuation of HEBR102 and HEBR111. Modern Israeli Hebrew. Emphasis on conversation. Study of linguistic structure and development of audio-lingual, writing, and reading ability. Corresponds to the first half of HEBR112.
**Prerequisite:** HEBR111 or HEBR102; or must have placement by the Hebrew coordinator.
**Restriction:** Must not have completed HEBR112.
**Credit Only Granted for:** (HEBR103 and HEBR104) or HEBR112.

**HEBR104 Elementary Hebrew II-B (3 Credits)**
Continuation of HEBR103. Modern Israeli Hebrew. Emphasis on conversation. Study of linguistic structure and development of audio-lingual, writing, and reading ability. Corresponds to the second half of HEBR112.
**Prerequisite:** HEBR103; or must have placement by the Hebrew coordinator.
**Restriction:** Must not have completed HEBR112.
**Credit Only Granted for:** (HEBR103 and HEBR104) or HEBR112.

**HEBR106 Intensive Elementary Hebrew I (4 Credits)**
An intensive study of fundamentals of Hebrew reading, writing, listening and Israeli culture. Covers present tense in all verb categories, basic syntax and builds vocabulary.
**Prerequisite:** Must have appropriate World Language Placement Test (WLPT) score.
**Credit Only Granted for:** HEBR111 or HEBR106.

**HEBR107 Intensive Elementary Hebrew II (4 Credits)**
A continuation of intensive study of fundamentals of Hebrew reading, writing, listening, speaking and Israeli culture. Covers past tense in all verb categories, basic syntax and builds vocabulary.
**Prerequisite:** HEBR106 or HEBR111; or must have appropriate score on World Language Placement Test; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** HEBR107 or HEBR112.

**HEBR112 Elementary Hebrew II (6 Credits)**
Continuation of HEBR 111.
**Prerequisite:** HEBR111; or must have appropriate Foreign Language Placement Test (FLPT) score.
**Restriction:** Must not have completed HEBR103; and must not have completed HEBR104.
**Credit Only Granted for:** (HEBR103 and HEBR104) or HEBR112.

**HEBR199 Special Topics in Hebrew (3 Credits)**
Topics in language, literature, and culture. Varies by semester and instructor.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 9 credits if content differs.

**HEBR203 Intermediate Hebrew II-A (3 Credits)**
Continuation of HEBR211 or HEBR202. Study of linguistic structure, further development of audio-lingual, reading, writing, and speaking skills. Reading of texts and newspapers designed to give some knowledge of Hebrew life, thought and culture. Corresponds to the first half of HEBR212.
**Prerequisite:** HEBR212 or HEBR202; or must have placement by the Hebrew coordinator.
**Restriction:** Must not have completed HEBR212.
**Credit Only Granted for:** (HEBR203 and HEBR204) or HEBR212.

**HEBR204 Intermediate Hebrew II-B (3 Credits)**
Continuation of HEBR203. Study of linguistic structure, further development of audio-lingual, reading, writing, and speaking skills. Reading of texts and newspapers designed to give some knowledge of Hebrew life, thought and culture. Corresponds to the second half of HEBR212.
**Prerequisite:** HEBR203; or must have placement by the Hebrew coordinator.
**Restriction:** Must not have completed HEBR212.
**Credit Only Granted for:** (HEBR203 and HEBR204) or HEBR212.

**HEBR206 Intermediate Intensive Hebrew I (4 Credits)**
Provides a comprehensive review of the fundamentals of Hebrew grammar and oral skills, and introduces new skills in future tense verb conjugation, and communication in reading, writing, listening and speaking.
**Prerequisite:** Must have completed HEBR107 OR HEBR112; or must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Must not be a fluent/native speaker of Hebrew.
**Credit Only Granted for:** HEBR206 or HEBR211.

**HEBR207 Intensive Intermediate Hebrew II (4 Credits)**
A review of the fundamentals of Hebrew grammar, reading, writing, listening and speaking.
**Prerequisite:** Must have completed HEBR206 OR HEBR211; or have the appropriate Score on the World Language Placement Test; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** HEBR207 or HEBR212.

**HEBR212 Intermediate Hebrew II (6 Credits)**
Continuation of HEBR211.
**Prerequisite:** HEBR211; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Must not have completed HEBR203; and must not have completed HEBR204.
**Credit Only Granted for:** (HEBR203 and HEBR204) or HEBR212.

**HEBR249 Special Topics in Hebrew Studies (1-3 Credits)**
A broad range of cultural and societal topics pertaining to the communication of Hebrew.
**Prerequisite:** Must have completed HEBR206; or HEBR211; or must have appropriate score on Foreign Language Placement Assessment; or students who have taken courses with comparable content may contact the department.
**Repeatable to:** 9 credits if content differs.

**HEBR269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**HEBR298 Special Topics in Jewish Studies (3 Credits)**
**Repeatable to:** 6 credits if content differs.

**HEBR298B Introduction to the Hebrew Bible/Old Testament (3 Credits)**
Origins of the Hebrew Bible (Old Testament), with attention to literary formations, archaeology, and social-political settings. Explorations of major questions, including who wrote the Bible, and when; relationships of the biblical tradition to the mythology and religious structures of ancient Israel's near eastern neighbors; and dynamics of politics, religious leadership, and law.
**Cross-listed with:** JWST262, ENGL262.
**Credit Only Granted for:** JWST262, HEBR298B, or ENGL262.

**HEBR298O Jewish Languages in America (3 Credits)**
With a particular focus on language minority intra-group relationships -- the convergences, divergences, feelings of solidarity and tensions of difference within the group--this course will examine the history, current functional use and identity implications of Jewish languages in the United States.
**Cross-listed with:** JWST285.
**Credit Only Granted for:** JWST285, JWST219O or HEBR298O.
**Formerly:** JWST219O.

**HEBR313 Conversation and Composition I (3 Credits)**
A practical language course recommended for all students continuing with Hebrew. Review of grammar and composition. Selected readings. Oral and written exercises.
**Prerequisite:** HEBR212; or students who have taken courses with comparable content may contact the department.

**HEBR314 Conversation and Composition II (3 Credits)**
A practical language course recommended for all students continuing with Hebrew. Review of grammar and composition. Selected readings. Oral and written exercises.
**Prerequisite:** HEBR313; or students who have taken courses with comparable content may contact the department.

**HEBR369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**HEBR381 Introduction to Hebrew Cultural Studies (3 Credits)**
Critical study of Israeli culture with emphasis on literature, film, and art as sites of struggle over political and social meaning during times of cultural transformation. Focus on the historical development of Israeli identity and gender, in particular within the military and Zionist youth movements. Taught in Hebrew.
**Prerequisite:** HEBR314; or permission of instructor.

**HEBR386 Experiential Learning (3-6 Credits)**
**Restriction:** Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor; and junior standing or higher.

**HEBR388 Language House Colloquium (1 Credit)**
For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.
**Restriction:** Must be a resident in the Language House Immersion program.
**Repeatable to:** 8 credits.

**HEBR430 Critical Issues in Israeli Cinema (3 Credits)**
Critical investigation of Zionist and Israeli culture and politics through film.
**Cross-listed with:** CINE430.
**Credit Only Granted for:** HEBR430, CINE430 or FILM430.
**Formerly:** FILM430.

**HEBR498 Special Topics in Hebrew (3 Credits)**
**Repeatable to:** 6 credits if content differs.

**HEBR499 Independent Study in Hebrew (1-3 Credits)**
Independent study under faculty supervision.
**Prerequisite:** Permission of instructor.
**Repeatable to:** 6 credits if content differs.

# HEIP - Entrepreneurship and Innovation

**HEIP143 Foundations of Entrepreneurship and Innovation (1 Credit)**
Foundational ideas and terms in entrepreneurship and innovation are introduced, with attention to developing students understanding of cultivating a business in diverse, global environments; leading and collaborating in a competitive world; developing an entrepreneurial mind for an entrepreneurial world; and industry dynamics of technological innovation.
**Restriction:** Must be in the Entrepreneurship and Innovation Program (EIP).

**HEIP144 Contemporary Issues in Entrepreneurship and Innovation (3 Credits)**
Inspires entrepreneurial innovation and creativity through interactive lectures, workshops, and case studies on contemporary issues to include energy, life sciences, healthcare, and technology. Explores entrepreneurial innovation sources, structures and dynamics. Helps students develop skills for generating ideas and addressing current issues and problems.
**Prerequisite:** HEIP143.
**Restriction:** Must be in the Entrepreneurship and Innovation Program (EIP).

**HEIP240 Exploring International Entrepreneurship and Innovation (3 Credits)**
An introduction to the opportunities and challenges of entrepreneurship and innovation from an international perspective.
**Restriction:** Must be an EIP student in good-standing.

**HEIP241 EIP Capstone: Creating Enterprise with Social Impact (2 Credits)**
Addresses the global necessity to develop and implement solutions to critical social and environmental concerns in ways that are both technologically viable and economically sustainable. Through group exercises, guest speakers, discussions, and experiential learning activities, students will develop the skills to create businesses that achieve the double bottom line of both profitability and social benefit.
**Restriction:** Must be in the Entrepreneurship and Innovation Program (EIP).

# HESI - Higher Ed, Student Affairs, and International Ed Policy

**HESI202 Race and Diversity in Higher Education (3 Credits)**
Will discuss contemporary and controversial issues on race and diversity in higher education. Addresses the question: How should race influence college admissions and campus climate? Will expose students to different viewpoints on the role of race in higher education settings.

**HESI220 Adaptive Strategies for Multicultural Leadership and Dialogue (3 Credits)**
As U.S. society becomes increasingly complex along multiple and continually evolving dimensions of individual and group identities, successful leaders will benefit from learning adaptive strategies and practices that will help them to navigate this complexity and adapt effectively in a climate of constant change. This class will focus on specific strategies, concepts, and insights for successful leadership and dialogue in twenty-first century U.S. multicultural society.
**Restriction:** Must not have completed BSCV301; and junior standing or lower.
**Credit Only Granted for:** EDCP318L or HESI220.
**Formerly:** EDCP318L.

**HESI221 Leadership, Power and Privilege (3 Credits)**
Critical analysis of social issues, contemplative practice, and dialogue are used to examine how power and privilege operate at individual, institutional, and societal levels to impact leadership perceptions and behaviors.

**HESI298 Special Problems in Higher Education, Student Affairs, and International Education Policy (1-6 Credits)**
Individual instruction in special problems related to higher education, student affairs and international education policy.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.

**HESI310 Transfer2Terp Learning Community: Applying Your Strengths at the University of Maryland and Beyond (3 Credits)**
Students will identify their strengths and learn how to apply them both in and outside of the classroom. Students will work side by side with the faculty and staff in the Adele H. Stamp Student Union to learn about their strengths while applying them to leadership positions.
**Restriction:** Priority will be given to students transferring from Maryland Community Colleges; or permission of EDUC-Counseling, Higher Education and Special Education department.

**HESI318 Applied Contextual Leadership (3 Credits)**
Course will utilize experiential learning opportunities to develop and apply the knowledge and skills of leadership into specific contexts of leadership practice.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** HESI318 or EDCP318.
**Formerly:** EDCP318.

**HESI418 Special Topics in Leadership (3 Credits)**
The special topics and leadership course will address a single topic related to leadership through the semester. In-depth study and analysis on the topic will be the basis for the course. Topics include gender and leadership, ethics and leadership, and culture and leadership. Leadership will serve as the foundation in the course.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** HESI418 or EDCP418.
**Formerly:** EDCP418.

**HESI421 Leadership and the Black Community (3 Credits)**
Examines leadership from the perspective of the African American experience. Specifically, we will explore the concept and differing meanings of "leader and leadership" within the African-American community in the United States. Issues of leaders and leadership will be examined as influenced by political, cultural, and historic events. The course will place particular emphasis on colleges and universities as a microcosm of the larger society and as a cultural site for exploring and assessing issues of African American leadership.
**Credit Only Granted for:** HESI418B or HESI421.
**Formerly:** HESI 418B.

**HESI422 Women and Leadership (3 Credits)**
The primary goal of this course is for students to develop an understanding of women's leadership and women's ways of influencing organizations. The course will rely heavily on the idea that you must know yourself first before you explore how "you" fit into the organization and how that organization fits into a broader context such as nation, culture, or community. We will talk about the social constructs of leadership and gender, including systems and structures, and the role media, television, movies, and sports play in defining women and their leadership in a cultural context. The exploration of women leaders will be broad based including the role that gender identity and expression, race, sexual orientation, country of origin, and ethnicity/culture play in women's definition and the expression of their leadership.
**Credit Only Granted for:** HESI418G or HESI422.
**Formerly:** HESI418G.

**HESI423 Leadership and Ethnicity (3 Credits)**
Examines the concept of leadership from the standpoint of race, ethnicity, and culture. Specifically, we will explore the concept and differing meanings of leader and leadership within racial/ethnic communities in the United States. Issues of leaders and leadership will be examined as influenced by political, cultural, and historic events. The course will place particular emphasis on colleges and universities as a microcosm of the larger society and as a cultural site for exploring and assessing issues of race, ethnicity, diversity and leadership.
**Credit Only Granted for:** HESI418D or HESI423.
**Formerly:** HESI418D.

**HESI424 Leadership and the Jewish Community (3 Credits)**
Offers students the opportunity to critically examine leadership and leadership identity development in relation to Jewish culture and identity. Explores how Jewish culture and ethnicity influence leadership styles and the role that leadership has played within Jewish history. Students will explore general leadership theories as well as personal leadership identity development in both an overall sense and as a member of the Jewish community. Examines leaders within the Jewish movement and how their leadership has influenced Jewish communities and explores issues facing the Jewish community both on college campuses and in the world and prepare student leaders to act as advocates for the Jewish community.
**Credit Only Granted for:** HESI418F or HESI424.
**Formerly:** HESI418F.

**HESI470 Introduction to Student Personnel (3 Credits)**
A systematic analysis of research and theoretical literature on a variety of major problems in the organization and administration of student personnel services in higher education. Included will be discussion of such topics as the student personnel philosophy in education, counseling services, discipline, housing, student activities, financial aid, health, remedial services, etc.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.
**Credit Only Granted for:** EDCP470 or HESI470.
**Formerly:** EDCP470.

**HESI489 Field Experiences in Higher Education, Student Affairs, and International Education Poli (1-4 Credits)**
Planned field experience in education and community related activities. Credit not to be granted for experiences accrued prior to registration.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.

**HESI498 Special Problems in Higher Education, Student Affairs, and International Education Policy (1-3 Credits)**
Available only to HESI students who have formal plans for individual study of approved problems.
**Prerequisite:** Available only to HISA, HIED, and HIEP students who have formal plans for individual study of approved problems.
**Restriction:** Permission of EDUC-Counseling, Higher Education and Special Education department.

**HESI499 Workshops, Clinics, Institutes (1-6 Credits)**
The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the Higher Education, Student Affairs, and International Education Policy program (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listings.
**Repeatable to:** 6 credits.

# HESP - Hearing and Speech Sciences

**HESP120 Introduction to Linguistics (3 Credits)**
An introduction to the scientific study of natural language with focus on the basic concepts of phonology, syntax, semantics and pragmatics, with subsequent attention to the applied aspects of linguistic principles.
**Additional Information:** HESP120 is required for HESP majors. HESP majors may not substitute LING200.

**HESP150 Introduction to Language Science (3 Credits)**
Language science is the scientific study of how humans acquire, use, comprehend, and produce language. Most people in all societies learn and use their native language or languages with apparent ease - but don't be fooled: languages are highly complex, and speaking and understanding language requires some amazing feats of mental acrobatics. Thus there are many opportunities for difficulties with language, which is the focus of our field. Understanding difficulties with speech, language, and hearing require first understanding how processing works when language is successful - the psychological (behavioral) and neurobiological (brain) factors that enable people to learn and use language despite its intricacies, the structure and properties of language itself, and how knowledge of language is acquired, represented, and processed in the mind and brain.

**HESP202 Introduction to Hearing and Speech Sciences (3 Credits)**
An introduction to communication sciences and disorders; a survey of the bases of normal speech, language and hearing ability, major forms of communicative disorders and their treatment.

**HESP204 Multicultural Issues in Communication Disorders (3 Credits)**
Enables students to understand cultural influences on communication, communication disorders, language, and society. Exploration of (self and others') perceptions, stereotypes, media influences and identity will be used to understand how society shapes and responds to language usage. We will also examine the legal and ethical implications of serving culturally and linguistically diverse populations.

**HESP214 The Research Behind Headlines on Words, Thought, and Behavior (3 Credits)**
How does the human mind use language? Type "Language Science News" into your Google search bar. Among the more than 3 billion hits, headlines like "What is love? It depends what language you speak" and "Science's English dominance hinders diversity" invite you to think about the impact of words on thought and behavior. These are stories about how humans acquire and use language, but they ultimately address big questions about how we experience knowledge itself. In a world of unprecedented access to science journalism, did you ever read a headline about human behavior and wonder: How do we know? This class takes up the elegant ways cognitive scientists design experiments to answer crucial questions about language and thought, brain and behavior, that have no intuitive answers. Students will dive deep into the media coverage of their favorite claims about what we know, debate the psychological science behind these claims, and develop transferable critical-thinking skills in the process.
**Cross-listed with:** HNUH278A.
**Credit Only Granted for:** HNUH278A or HESP214.

**HESP258 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**HESP300 Introduction to Psycholinguistics (3 Credits)**
An introduction to current theories of language and an investigation of their relationship to human communication behavior. Survey of the experimental literature relating to this question.
**Prerequisite:** Minimum grade of C- in HESP202; or permission of BSOS-Hearing & Speech Sciences department.
**Recommended:** HESP120.

**HESP303 Phonetic transcription (2 Credits)**
An introduction to broad and narrow phonetic transcription, and to physiology of speech production. The primary goal of the course is to provide knowledge about phonetics and the ability to use this knowledge in an applied setting.
**Prerequisite:** Permission of instructor.

**HESP305 Anatomy and Physiology of the Speech Mechanism (3 Credits)**
Anatomy, physiology, and neurology of speech mechanism.
**Prerequisite:** Minimum grade of C- in HESP202; or permission of BSOS-Hearing & Speech Sciences department.

**HESP306 Anatomy and Physiology of Speech & Hearing (4 Credits)**
This is a 4-credit course focusing on the biological and neurological bases of human speech production and human hearing, namely the anatomy, physiology, and neurology of the vocal/speech mechanism and the hearing mechanism.Specifically, respiration, phonation, resonance, articulation, swallowing, and hearing will be highlighted. A strong understanding of normal anatomy and physiology is essential for the successful evaluation and treatment of patients with speech, language, swallowing and hearing disorders.
**Prerequisite:** Permission of instructor.

**HESP307 Speech & Hearing Science (4 Credits)**
Human hearing is exquisitely sensitive, allowing us to hear extremely faint sounds, to follow the sounds of a friend's voice in a loud party, and to appreciate subtle differences between words in the language. This course provides an introduction to the basic physics of sound, the acoustic properties of the sounds of speech, and the mechanisms by which those sounds are perceived by the listener.
**Prerequisite:** HESP303.

**HESP311 Anatomy, Pathology and Physiology of the Auditory System (3 Credits)**
Gross anatomy of the ear and pathways for transmission of sound energy through the peripheral and central auditory system. Causes, development and effects of pathological conditions contributing to temporary or chronic hearing impairments.
**Prerequisite:** Minimum grade of C- in HESP202; or permission of BSOS-Hearing & Speech Sciences department.

**HESP313 Neurobiology for Speech and Hearing (2 Credits)**
This course is designed to provide an understanding of normal neuroanatomy and neurophysiology of speech and language. It will also provide preliminary information regarding pathologic processes, especially those affecting speech and language

**HESP359 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**HESP386 Experiential Learning (1-3 Credits)**
Students will have the opportunity observe and/or participate in therapy activities provided by a speech-language pathologist or audiologist in this experiential learning course.
**Restriction:** Junior standing or higher; and permission of BSOS-Hearing & Speech Sciences department.

**HESP389 LEAP Classroom Internship (1-3 Credits)**
Participation in a language-based, literacy-rich preschool classroom for children with speech-language disorders. Students will learn behavior management techniques, curriculum planning and implementation, facilitation of play among children, data collection and teaching srategies.
**Prerequisite:** HESP202; or students who have taken courses with comparable content may contact the department.
**Restriction:** Permission of BSOS-Hearing & Speech Sciences department.

**HESP396 SIGNA Undergraduate Peer Mentor Clinical Practicum (2 Credits)**
Students are paired with neurodivergent UMD students to support mentoring in social communication and executive functioning skills. Peer mentors are selected based on a rigorous application process for fall and spring semesters. Selected peer mentors will engage in an orientation process which includes in depth information on neurodiversity and the intersectionality of DEI; attend a weekly lecture and group sessions to acquire up-to-date knowledge and application of knowledge with neurodiverse populations; and manage meetings with neurodivergent students one-to-one on a weekly basis to support carryover of social coaching and executive functioning strategies.
**Prerequisite:** HESP202.
**Recommended:** Coursework in PSYC, EDUC, Human Development, Disability Studies.
**Restriction:** Sophomore standing or higher; and permission by instructor .

**HESP397 SIGNA Undergraduate Peer Coach Clinical Practicum (3 Credits)**
Students co-lead weekly groups for neurodivergent college students, coaching on topics and strategies pertaining to social communication and executive functioning skills. Peer coaches create outlines for weekly groups which are individualized by needs and interests. Peer coaches plan monthly social outings for SIGNA personnel to support generalization of executive functioning and social communication skills. Peer coaches are selected based on a rigorous application process for fall and spring semesters. Students who previously served in a peer mentor role in SIGNA are given priority consideration as peer coaches. Peer coaches will engage in an orientation process which includes in depth information on neurodiversity; attend weekly lectures to acquire up-to-date knowledge of neurodiverse populations; and attend group debrief meetings with the course instructor on a weekly basis to support implementation of social coaching and executive functioning feedback from groups.
**Prerequisite:** HESP202.
**Recommended:** Coursework in PSYC, EDUC, Human Development, Disability Studies, HESP396.
**Restriction:** Junior standing or higher; and permission of instructor.

**HESP400 Speech and Language Development in Children (3 Credits)**
Analysis of the normal processes of speech and language development in children.
**Prerequisite:** Minimum grade of C- in HESP300; or permission of BSOS-Hearing & Speech Sciences department.
**Recommended:** LING200 or HESP120.
**Restriction:** Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department.

**HESP402 Language and Phonological Disorders in Children (3 Credits)**
Etiology, assessment and treatment of language and phonological disorders in children.
**Prerequisite:** Minimum grade of C- in HESP400; or permission of BSOS-Hearing & Speech Sciences department.
**Restriction:** Must be in Hearing and Speech Sciences program.

**HESP403 Introduction to Phonetic Science (3 Credits)**
An introduction to physiological, acoustic and perceptual phonetics; broad and narrow phonetic transcription; current models of speech production and perception.
**Prerequisite:** Minimum grade of C- in HESP305; or permission of BSOS-Hearing & Speech Sciences department.
**Restriction:** Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department.

**HESP406 Acquired Neurogenic Communication Disorders in Adults (3 Credits)**
Survey of the dysarthrias and aphasias in adults from an interdisciplinary point of view.
**Prerequisite:** Minimum grade of C- in HESP300 and HESP305; or permission of BSOS-Hearing & Speech Sciences department.
**Restriction:** Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department.

**HESP407 Bases of Hearing Science (3 Credits)**
Fundamentals of hearing, including the physics of sound, anatomy and physiology of peripheral and central auditory nervous system, psychophysical procedures used in measurement of auditory sensation and perception, and topics in psychological acoustics.
**Prerequisite:** Minimum grade of C- in HESP311; or permission of BSOS-Hearing & Speech Sciences department.
**Restriction:** Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department.

**HESP411 Introduction to Audiology (3 Credits)**
An introduction to the field of audiology. Evaluation and remediation of hearing handicaps.
**Prerequisite:** Minimum grade of C- in HESP311; or permission of BSOS-Hearing & Speech Sciences department.
**Restriction:** Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department.

**HESP413 Aural Rehabilitation/Habilitation (3 Credits)**
The fundamental aspects of aural rehabilitation therapy for both adults and children are introduced to students. Class time will consist of lectures, discussions, and hands-on activities.
**Prerequisite:** HESP411.
**Restriction:** Sophomore standing or higher.

**HESP415 Principles and Methods in Speech-Language Pathology (2 Credits)**
The principles and methods required to provide treatment of speech and language disorders to children and adults. Topics include writing goals and objectives, programming,teaching strategies,session design, data collection, behavior modification and counseling.
**Prerequisite:** HESP400.
**Restriction:** Must be in Hearing and Speech Sciences program.

**HESP416 Principles and Methods in Audiology (2 Credits)**
Relate previous knowledge of anatomy/physiology and pathologies of the auditory system and integrate this information into clinical application.
**Prerequisite:** Minimum grade of C- in HESP411.
**Restriction:** Must be in Hearing and Speech Sciences program; and permission of BSOS-Hearing & Speech Sciences department.

**HESP417 Principles and Methods in Speech-Language Pathology and Audiology (3 Credits)**
The principles underlying the treatment of speech, language and hearing disorders in children and adults.
**Prerequisite:** HESP400 and HESP411; or permission of BSOS-Hearing & Speech Sciences department.
**Restriction:** Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department.

**HESP418 Clinical Practice in Speech-Language Pathology and Audiology (3 Credits)**
Supervised observation with some direct participation in clinical methods for the treatment of disorders of articulation, fluency, child and adult language; evaluation and habilitation/rehabilitation of hearing impaired children and adults.
**Prerequisite:** Minimum grade of C- in HESP417.
**Restriction:** Permission of BSOS-Hearing & Speech Sciences department.
**Repeatable to:** 6 credits.

**HESP420 Deaf Culture and ASL for the CSD Professional (3 Credits)**
Studying Deaf Culture and American Sign Language is crucial in enhancing the culturally competent practice of allied health professionals. This course explores the politics of (dis)ability through the lens of the experience of d/Deafness and the emergence of the Deaf community as a linguistic and cultural group in the United States, as well as issues that impact the provision of services to this population.
**Prerequisite:** HESP202.
**Credit Only Granted for:** HESP498A or HESP420.
**Formerly:** HESP498A.

**HESP422 Neurological Bases of Human Communication (3 Credits)**
Basic neurology as it pertains to anatomy and physiology substrates of speech and language.
**Prerequisite:** HESP305; or permission of instructor.
**Credit Only Granted for:** HESP498 or HESP422.

**HESP458 Global Perspectives in Communication Sciences and Disorders (3 Credits)**
Provides students with a supervised and multidisciplinary international service learning (ISL) opportunity for the reciprocal exchange of cultural perspectives, knowledge, and skills. Through interactions with Ghana health and educational professionals as well as patients/clients and their families, students will gain perspective on broader health issues such as determinants of health, health disparities, and the global burden of disease. Students will have learning opportunities in governmental and non-governmental organizations (NGOs) to gain knowledge of and experience with varied healthcare and educational systems in under-resourced communities. In addition to observing and working with Ghana Speech-Language Therapists (SLT) and other rehabilitative professionals, students will assist faculty in the provision of educational workshops for professionals and/or outreach activities for the community.
**Prerequisite:** HESP202, HESP300, HESP311, and HESP400; and one course from (HESP406, HESP411, or HESP402).
**Jointly offered with:** HESP659.
**Restriction:** Must be a major in Hearing and Speech Sciences .
**Repeatable to:** 6 credits.
**Credit Only Granted for:** HESP659 or HESP458.
**Additional Information:** This course will require students to travel out of the country.

**HESP468 Professional Development in Research and Academia (1 Credit)**
The purpose of this seminar is to complement your honors project with practical advice on how to navigate successful careers in research and academia. As you progress through your undergraduate years (especially if you work in a lab), you will likely make several unofficial observations about life as a graduate student, postdoc, or professor, and overhear conversations that include new terminology that may be confusing (e.g., research mentorship, grants, conference abstract, tenure). This can create a mysterious aura around what it is like to obtain your PhD and work in academia generally. In this class, we will cover tips and skills that are often passed along informally in the lab; but here, we will discuss these issues overtly from a range of perspectives, experiences, and best practices.
**Restriction:** Must be in the Hearing and Speech Sciences Honors program; or permission of Hearing and Speech Sciences department.
**Repeatable to:** 3 credits if content differs.
**Additional Information:** This course would be taken for three semesters.

**HESP469 Honor Thesis Research (1-3 Credits)**
Student will develop thesis proposal, conduct research, analyze results, develop and defend final written document.
**Prerequisite:** Permission of honors thesis advisor required.
**Repeatable to:** 6 credits if content differs.

**HESP489 Undergraduate Research Experience (1-3 Credits)**
Undergraduate research experience working under HESP faculty or outside affiliates.
**Prerequisite:** HESP202.
**Restriction:** Permission of BSOS-Hearing & Speech Sciences department; and sophomore standing or higher.
**Repeatable to:** 6 credits.
**Formerly:** HESP388.

**HESP498 Seminar (3 Credits)**
Selected topics in human communication and its disorders.
**Restriction:** Permission of BSOS-Hearing & Speech Sciences department.
**Repeatable to:** 6 credits if content differs.

**HESP499 Independent Study (1-3 Credits)**
A directed study of selected topics pertaining to human communication and its disorders.
**Restriction:** Permission of BSOS-Hearing & Speech Sciences department.
**Repeatable to:** 6 credits if content differs.

# HGLO - Honors Global Communities

**HGLO100 The Student in the University: Global Communities (1 Credit)**
Students will develop a sense of community within the program, become familiar with campus resources, gain skills and information to prepare for the Global Experience Semester, and explore the surrounding international community.
**Restriction:** Must be enrolled in Honors Global Communities Living-Learning Program.
**Credit Only Granted for:** BSGC100 or HGLO100.
**Formerly:** BSGC100.

**HGLO101 Saving the World With Data (3 Credits)**
The world is grappling with many intractable issues, like climate change, pandemics, democratic backsliding, and inequality. How can we use data analysis to help us better understand and work to solve these problems? In this class students will engage with a wide range of issues affecting the entire globe. In addition, they will also gain valuable data science skills by learning the basics of coding in R. No previous programing experience is required.
**Restriction:** Must be in Honors Global Communities Living-Learning program.
**Credit Only Granted for:** HGLO101 or BSGC101.
**Formerly:** BSGC101.

**HGLO208 Using Data to Answer Hard Questions (3 Credits)**
In this class, students will learn more advanced data science techniques and gain an understanding of hypothesis formation and general research design.
**Prerequisite:** GVPT201.
**Restriction:** Must be enrolled in Honors Global Communities Living-Learning Program.
**Repeatable to:** 6 credits if content differs.

# HHUM - Honors Humanities

**HHUM105 Honors Humanities: Introduction to the Arts and Humanities (3 Credits)**
Introduction to the university, the different fields of the arts and humanities, and the history of how the university and the humanities have evolved across the world from ancient times to the present. Primary emphasis on reading and discussion of literary artifacts to assess the meaning and social status of the arts and humanities in the past and their personal and social value for the future.
**Restriction:** Must be an entering freshmen in the Honors Humanities Program.
**Credit Only Granted for:** ARHU105 or HHUM105.
**Formerly:** ARHU105.

**HHUM106 Honors Humanities: The Humanities in Practice (3 Credits)**
The application of the disciplines, methods and traditions of the Humanities to contemporary problems and issues such as social injustice, immigration, income inequality, and the role of social media. Students will apply to such issues the tools of the Humanities: research and historical analysis, critical reasoning, communication and persuasion, ethical debate, and imagination. The course will utilize the institutions of Washington, D.C. to explore contemporary problems and will guide students in the creation of their individual proposals for the capstone project that is the culmination of the curriculum in Honors Humanities.
**Recommended:** HHUM105.
**Restriction:** Must be in the Honors Humanities Program.
**Additional Information:** Priority enrollment will be given to students in Honors Humanities.

**HHUM205 Second Year Seminar in Honors Humanities (3 Credits)**
Seminar on basic issues and methodologies in the humanities and arts.
**Credit Only Granted for:** ARHU205 or HHUM205.
**Formerly:** ARHU205.

**HHUM206 Honors Humanities Keystone Project (3 Credits)**
Design, execution and completion of students' chosen Keystone Projects in the form of research, creativity, or service. Students will have formulated tentative plans for their projects in HHUM106; in this course they will revise and augment those proposals, articulate their connections with the traditions and methods of the humanities, formulate a work plan for completing the project within one semester, and work with their fellow students to workshop their materials as they develop. The course will culminate in a presentation of the project at the annual Keystone Symposium and with the submission of the project in its final form.

**HHUM288 Seminar: Selected Issues in Honors Humanities (3 Credits)**
Seminar on important topics in Arts and Humanities for students in the Honors Humanities Program.
**Restriction:** Must be in the Honors Humanities Program.
**Repeatable to:** 9 credits if content differs.
**Credit Only Granted for:** ARHU288 or HHUM288.
**Formerly:** ARHU288.

**HHUM328 Internship in Honors Humanities (1-3 Credits)**
Supervised service-learning in Honors Humanities.
**Prerequisite:** HHUM105; and permission of the Honors Humanities Director.
**Restriction:** Sophomore standing or higher.
**Repeatable to:** 3 credits.
**Credit Only Granted for:** ARHU328 or HHUM328.
**Formerly:** ARHU328.

**HHUM329 Undergraduate Teaching Assistantship (1-3 Credits)**
Supervised pedagogical service-learning in the Honors Humanities curriculum.
**Prerequisite:** HHUM106, HHUM205, and HHUM105; and permission of the Honors Humanities Director.
**Credit Only Granted for:** ARHU329 or HHUM329.
**Formerly:** ARHU329.

# HISP - Historic Preservation

**HISP200 The Everyday and the American Environment (3 Credits)**
An introduction to the theories of the everyday within the context of the American built environment. Focuses primarily on the American experience of underrepresented, minority, and/or immigrant communities; both historical and contemporary. Attempts to challenge what is meant by American in describing the American everyday built environment.Jointly offered with HISP615.

**HISP319 Special Topics in Historic Preservation (1-6 Credits)**
Students will explore technical aspects of preservation taught by practitioners whose expertise are of special benefit to undergraduate students.
**Repeatable to:** 12 credits.

# HIST - History

**HIST106 American Jewish Experience (3 Credits)**
History of the Jews in America from Colonial times to the present. Emphasis on the waves of migration from Germany and Eastern Europe; the changing nature of the American Jewish community and its participation in American social, economic, and political life.
**Cross-listed with:** JWST141.
**Credit Only Granted for:** HIST106 or JWST141.

**HIST108 Freshman/Sophomore Seminar in History (3 Credits)**
Seminar for freshmen and sophomores on a specific historical case study and historical "problem," taught by a professor who specializes in the field. Participants will learn about the subject by doing the work of historians: carefully considering primary and secondary sources, discussing them in a seminar format, and preparing original written work drawn upon these materials. Seminar topics will range widely and the offerings will vary each semester; these are "special topics" courses.
**Repeatable to:** 6 credits if content differs.

**HIST108B Freshman/Sophomore Seminar in History; Gandhi: The Individual in History (3 Credits)**
Uses the life and legacy of Mohandas K. Gandhi, in modern India and beyond, as a starting point to explore the relationship between individuals in world history and the social contexts that produced them. Topics include non-violence, diet, sexuality, politics, law, technology, the environment, and representations in film and other media.

**HIST108C Martin Luther King Jr. (3 Credits)**
Examines the life and work of Martin Luther King, Jr. We immediately rethink the image of King who liberals and conservatives construct as a dreamer of better race relations. We engage the complexities of an individual, who articulated a moral compass of the nation, to explore racial justice in post-World War II America. This course gives special attention to King's post-1965 radicalism when he called for a reordering of American society, an end to the war in Vietnam, and supported sanitation workers striking for better wages and working conditions. Topics include King's notion of the "beloved community", the Social Gospel, liberalism, "socially conscious democracy", militancy, the politics of martyrdom, poverty and racial justice, and compensatory treatment. Primary sources form the core of our readings.
**Cross-listed with:** AASP298M, AMST189C.
**Credit Only Granted for:** HIST108C, AASP298M, or AMST189C.

**HIST110 The Ancient World (3 Credits)**
Interpretation of select literature and art of the ancient Mediterranean world with a view to illuminating the antecedents of modern culture; religion and myth in the ancient Near East; Greek philosophical, scientific, and literary invention; and the Roman tradition in politics and administration.

**HIST111 The Medieval World (3 Credits)**
The development of Europe in the Middle Ages; the role of religious values in shaping new social, economic, and political institutions; medieval literature, art and architecture.

**HIST113 The Making of Modern Europe (3 Credits)**
Evolution of modern nation states since late medieval times. Industrial-economic structure and demography. Emergence of modern secular society.

**HIST120 Islamic Civilization (3 Credits)**
Introduction to society and culture in the Middle East since the advent of Islam: as a personal and communal faith; as artistic and literary highlights of intellectual and cultural life; and as the interplay between politics and religion under the major Islamic regimes.
**Cross-listed with:** RELS120.
**Credit Only Granted for:** HIST120 or RELS120.

**HIST122 African Civilization to 1800 (3 Credits)**
History of Africa from earliest times to 1800. Topics of study include origins of African societies, Nile Valley civilization, medieval African states and societies, Islam, oral traditions, African slavery and the slave trade, and early African-European interactions.

**HIST123 Sub-Saharan Africa Since 1800 (3 Credits)**
Overviews early mid-19th-century changes in African societies, European conquest and African resistances in the late 19th-century, colonial states and societies, African nationalisms and decolonization and the independence era. Struggles over social, economic, and political changes are emphasized.

**HIST131 The History of the American Dream (3 Credits)**
An introduction to the way Americans thought of themselves in the past, and their often conflicting visions of what constituted the American Dream. Central questions will include whether or not Americans have always envisioned their country as a land of equality, opportunity, democracy, and freedom and whether or not their ideas of what these values meant changed or remained the same over time.
**Credit Only Granted for:** HIST131 or HIST289J.
**Formerly:** HIST289J.

**HIST132 Fighting Slavery (3 Credits)**
An examination of the different tools and tactics, means and methods that Americans have used to escape slavery or try to eliminate it.

**HIST133 God Wills It! The Crusades in Medieval and Modern Perspectives (3 Credits)**
An examination of the identities and convictions both of the Western Europeans who participated in the Crusades and of the Easterners (Muslim, Christian, and Jewish) whom they encountered in the Holy Land. Focuses on the era of the first four great Crusades, from about 1095 to 1215. Consideration of the cultural impact of these movements on both Western Europe and the Middle East.
**Cross-listed with:** RELS133.
**Credit Only Granted for:** HIST133, RELS133 or RELS289D.
**Formerly:** RELS289D.

**HIST134 Spies, Assassins, Martyrs, and Witches: Famous Trials in American History (3 Credits)**
Examination of some of the most famous trials in American history and their enduring hold on the imagination.

**HIST135 Civil Discourse or Urban Riot: Why Cities Don't (Often) Explode (3 Credits)**
An examination of the mechanisms that promote peaceful co-existence in urban societies and a discussion of how and why city streets sometimes become violent.
**Cross-listed with:** JWST289E.
**Credit Only Granted for:** HIST135 or JWST289E.

**HIST136 Moneyland: Business in American Culture (3 Credits)**
An exploration of American business culture and institutions from colonial times to the present with emphasis on how inherited and acquired identities (social capital) have shaped Americans' experiences as entrepreneurs, managers, workers, and consumers.

**HIST137 Pursuits of Happiness: Ordinary Lives in the American Revolution (3 Credits)**
Investigates the search for personal fulfillment unleashed by the American Revolution; explores the many different meanings ascribed to the notion of the "pursuit of happiness" by Americans in the early national period.
**Credit Only Granted for:** HIST137 or HNUH218A.

**HIST142 Looking at America through a Global Lens (3 Credits)**
Looking at America will focus on a thematic approach to the study of foreign -- negative and positive -- perceptions of America in the 20th century.
**Credit Only Granted for:** HIST289I or HIST142.
**Formerly:** HIST289I.

**HIST143 Power, Ritual, and Society in Western History (3 Credits)**
Introduces students to influential works of political thinking, in the Western tradition from classical Antiquity to the present, that treat the relationship between power, ritual, and society. Investigates ritual and its relationships to power, both in reality and the imagination of political thinkers.
**Credit Only Granted for:** HIST289F or HIST143.
**Formerly:** HIST289F.

**HIST146 Comparative History of Crime and Punishment (3 Credits)**
Explores the transformation of crime and punishment in England, France, and America over five centuries. Focus is on the connections between forms of government, cultural norms, and punishment. How do ideas about government and its rightful exercise connect to which actions are deemed crimes, who is punished, and how they are punished? "Crimes" covered in this course will range from high crimes such as murder, theft, witchcraft, heresy, sedition, and treason to crimes of property and morals crimes such as non-attendance at church and drunkenness.
**Credit Only Granted for:** HIST289L or HIST146.
**Formerly:** HIST289L.

**HIST147 History of Satan: Conceptions of Ultimate Evil from Antiquity to the Present (3 Credits)**
Traces the concept of Satan in the Jewish and Christian traditions from the Hebrew Bible, through the early modern witch crazes, to the "Satanic Panic" of the '80s and modern conspiracy theories. We'll examine both how our darkest fears have changed over the centuries, and which elements have stayed remarkably consistent across time. In the process, we'll seek to answer our Big Question: How do ideas about the devil reflect the norms and anxieties of the cultures that produce them?

**HIST187 God, Land, Power, and the People: Moral Issues in the Jewish Historical Experience (3 Credits)**
Examines the complicated relationship between theology, nationalism, sovereignty, and the ethical exercise of social control using case studies drawn from the Jewish historical experience. The universal and age-old issues implicit in the exercise of power have gained special moral force for Jews with the creation of the State of Israel, a Jewish and a democratic state with substantial non-Jewish minorities and hundreds of thousands of non-citizen subjects. Can these be reconciled? Jewish efforts over the ages and in recent times to define justice provide concrete examples through which to examine and discuss crucial abstract principles.
**Cross-listed with:** JWST187.
**Credit Only Granted for:** HIST187 or JWST187.

**HIST189 Topics in History (1-3 Credits)**
Thematic exploration of a topic in history at an introductory level with emphasis on understanding what historians do and how history is relevant in the contemporary world.
**Repeatable to:** 6 credits if content differs.

**HIST200 Interpreting American History: Beginnings to 1877 (3 Credits)**
The United States from colonial times to the end of the Civil War. Establishment and development of American institutions.
**Credit Only Granted for:** HIST156 or HIST200.
**Formerly:** HIST156.

**HIST201 Interpreting American History: From 1865 to the Present (3 Credits)**
The United States from the end of the Civil War to the present. Economic, social, intellectual, and political developments. Rise of industry and emergence of the United States as a world power.
**Credit Only Granted for:** HIST157 or HIST201.
**Formerly:** HIST157.

**HIST204 Introduction to the History of Science (3 Credits)**
An exploration of the roots of modern science from the ancient Greeks through the medieval and early modern periods. Focus on the men and women who helped to create the sciences and to change public perceptions of their disciplines.
**Credit Only Granted for:** HIST174 or HIST204.
**Formerly:** HIST174.

**HIST205 Environmental History (3 Credits)**
An exploration of the way different societies have used, imagined, and managed nature. Includes examination of questions of land use, pollution, conservation, and the ideology of nature, especially but not exclusively in Europe and North America.

**HIST206 Introduction to the History of Technology (3 Credits)**
Introduction to the history of major technological changes and innovations; examination of the revolutionizing potential of technology.
**Credit Only Granted for:** HIST175 or HIST206.
**Formerly:** HIST175.

**HIST208 Historical Research and Methods Seminar (3 Credits)**
Reading and research skills and methods. Research papers will be based on the topic of the seminar.
**Restriction:** Must be in History program.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** HIST208 or HIST220.
**Formerly:** HIST220.

**HIST210 Love, Labor, and Citizenship: Women in America to 1880 (3 Credits)**
An examination of the economic, family, and political roles of colonial slave, immigrant and frontier women in America from the pre-industrial colonial period through the early stages of 19th-century industrialization and urbanization.
**Cross-listed with:** WGSS210.
**Credit Only Granted for:** HIST210, WMST210 or WGSS210.
**Formerly:** WMST210.

**HIST211 Women in America Since 1880 (3 Credits)**
An examination of women's changing roles in working class and middle class families, the effects of industrialization on women's economic activities and status, and women's involvement in political and social struggles, including those for women's rights, birth control, and civil rights.
**Cross-listed with:** WGSS211.
**Credit Only Granted for:** HIST211, WMST211 or WGSS211.
**Formerly:** WMST211.

**HIST212 Women in Western Europe 1750-Present (3 Credits)**
An analysis of the economic, family, and political roles of European women from 1750 to the present. The effects of industrialization on women's work and status, the demographic parameters of women's lives, and women's participation in political events from market riots to suffrage struggles.
**Cross-listed with:** WGSS212.
**Credit Only Granted for:** HIST212, WMST212 or WGSS212.
**Formerly:** WMST212.

**HIST213 History of Sexuality in America (3 Credits)**
Explores the social construction of sexualities from the first colonial settlement to the modern era in the United States. Analyzes the implications of these understandings for power relations in U.S history.
**Cross-listed with:** WGSS298L.
**Credit Only Granted for:** HIST213, WMST298L or WGSS298L.

**HIST215 Women in Western Europe to 1750 (3 Credits)**
An exploration of the theories and rhetoric about the nature and existence of women in the West, focusing on the experience of women from the hegemony of Classical Greece to the French Revolution, an era that marks the beginning of a continuous process of change. Emphasis will be on the period between 1250 and 1750, when the Western European world was fundamentally altered in every aspect and in every level of society, culture, and government.
**Credit Only Granted for:** HIST215 or HIST219A.
**Formerly:** HIST219A.

**HIST217 From Mary Wollstonecraft's Vindication to Bridget Jones's Diary: Women and Gender in Modern Britain: 1790-Present (3 Credits)**
Starting with Britain's first feminist writer in the 1790s, Mary Wollstonecraft, and ending with the post-feminist fictional Bridget Jones, this course will examine the economic, social, political, and cultural lives of women in Britain since the late 18th century. We will meet famous British women (Queens Victoria and Elizabeth II, Virginia Woolf, Margaret Thatcher, etc) as well as ordinary women (industrial workers, Victorian prostitutes, war nurses and munitions workers, feminist activists, mothers, among others) to understand how class, gender, race, and history intersect. The course aims to provide an introduction to debates about gender and history and employs a variety of primary sources (including novels, autobiography, political pamphlets and social investigations, film) supplemented by secondary sources, to explore women's engagement in public life over the last 230 years.

**HIST219 Special Topics in History (3 Credits)**

**HIST219I Religions of the Ancient Near East (3 Credits)**
Introduction to ancient Near Eastern religious systems and mythology, from the third millennium BCE through the fourth century BCE. Particular emphasis on Mesopotamia and ancient Israel.
**Cross-listed with:** RELS225, JWST225.
**Credit Only Granted for:** JWST225, HIST219I, RELS225, or RELS219A.
**Formerly:** RELS219A.

**HIST219N Introduction to Humanities, Health, and Medicine (3 Credits)**
An overview of the historical, cultural, ethical, and spiritual dimensions of medicine, human health, disease, and death from the points of view of various humanistic disciplines.
**Cross-listed with:** ARHU230, ENGL254, WGSS230.
**Restriction:** Permission of ARHU-English Department.
**Credit Only Granted for:** ARHU230 , ENGL289C, ENGL254, ARHU298A, HIST219N, or WGSS230.

**HIST219T Discovering the World of Ancient Rome (3 Credits)**
An exploration of the cultural traits and developments of ancient Roman civilization from its roots in Etruscan culture, through the rise of the Roman Republic, to the expansion of Roman cultural influence in the ancient world and the emergence of the Roman Empire. Drawing upon the evidence of the archaeological remains as well as ancient historical and literary documents, students gain a basic familiarity with the principal monuments and artifacts of ancient Roman civilization, the various institutions and values that characterized the Romans, and the significant historical events that transformed the culture over the course of antiquity.
**Cross-listed with:** CLAS190.
**Credit Only Granted for:** CLAS190 or HIST219T.

**HIST219X Modern Iran (3 Credits)**
General sociopolitical introduction to modern Iran from establishment of the Qajar dynasty in the late 18th century to the present day. Taught in English.
**Cross-listed with:** PERS251.
**Credit Only Granted for:** PERS251 or HIST219X.

**HIST220 The Atlantic World in the Age of Exploration, Conquest, and Settlement (3 Credits)**
Study of encounters, exchanges, and clashes between Native Americans, Europeans, and Africans in the early modern Atlantic World. Examines conquest and colonial systems; movement of men and women and mixing of peoples, and the persistence of native folkways.
**Credit Only Granted for:** HIST219V or HIST220.
**Formerly:** HIST219V.

**HIST221 Asian American History (3 Credits)**
Introduction to the history of Asian Americans and Asians in the United States and the Americas and to the field of Asian American Studies, from an interdisciplinary perspective. Topics include theories of race and ethnicity; Asian migration and diaspora to the Americas; Asian American work and labor issues; gender, family, and communities; nationalism and nativism, and anti-Asian movements; Asian Americans in World War II, the Cold War, and the issues in the civil rights & post-civil rights era.
**Cross-listed with:** AAST201.
**Credit Only Granted for:** AAST201 or HIST221.

**HIST222 Immigration and Ethnicity in America (3 Credits)**
The history of immigration and the development of diverse populations i the United States are examined. Topics include related political controversies, the social experiences of immigrants, ethnicity, generations, migration, inter-group relations, race, and diversity in American culture.
**Credit Only Granted for:** AAST222, HIST222, or SOCY222.

**HIST223 Globalizing the American Revolution (3 Credits)**
How is the American Revolution a creation story in the making of our multi-cultural and interconnected modern world? Consider the Declaration of Independence. When first published on July 5, 1776, it was printed by an immigrant Irishman on Dutch paper that had been brought over from England. This was the first such declaration of independence ever issued, but its ideas and forms traveled far and wide. More than 100 other declarations of independence have been issued since then. The people that declaration mobilized are similarly diverse: the American Revolution is as much the story of Creek farmers, Spanish soldiers, French slaves, Canadian fugitives, Indian tea-growers, and African statesmen as it is of the Minutemen and Sons of Liberty. In this globe-trotting class, students will be positioned to debate how the familiar story of the American Revolution changes when we place it in transnational context.
**Cross-listed with:** HNUH218C.
**Credit Only Granted for:** HNUH218C or HIST223.

**HIST224 Modern Military History, 1494-1815 (3 Credits)**
Survey of global military history from the European "discovery" of the Americas to the end of the Napoleonic Wars. Explores how the creation of professional armies, advancement of weapons technology, and evolution of military-civilian relations in Europe during these three centuries sparked the "Rise of the West".

**HIST225 Modern Military History, 1815-Present (3 Credits)**
The military history of Europe through an examination of the economic, financial, strategic, tactical, and technological aspects of the development of military institutions and warfare from the Congress of Vienna in 1815 to the present.

**HIST226 Revolution, Regret, and Reform: The People and Principles in American Political History (3 Credits)**
Explores American political history from Independence through the present day. Interrogates the roots of American political ideas, the dynamics of partisan competition, the interaction of class, ethnicity, race, and politics, the evolution of policy preferences, the growth of the state, and the transformation of grassroots expectations and ambitions, among other important themes. By exploring the writings of major figures as well as the preferences of anonymous voters--and everyone in between, this course will help students identify the overarching themes and the important forgotten moments in our nation's political development. Students will end the semester armed with a mastery of this history, an understanding of the methods of political historians and scholars in related fields, and a contextualization of our contemporary political world.
**Credit Only Granted for:** HONR299G or HIST226.
**Formerly:** HONR299G.

**HIST227 Frederick Douglass's America (3 Credits)**
What does it mean to be free in the United States? The concept of freedom was embedded in the nation's political culture in the Declaration of Independence, and it has remained a cherished and contested ideal. We can interrogate this concept through the life and times of Frederick Douglass (1818-1895), who dreamed eloquently of freedom, thought carefully about its limits, and worked ardently to build a firmer freedom for a broader population. With Douglass as our guide, we will examine the survival of slavery in a nation built on freedom, images of the expanding United States as a land of opportunity, and the complex meanings and tremendous costs of freedom struggles during the nineteenth century. This history will push you to think critically about the contested concepts that shape our lives, and to consider the values and the perils of a society that positions freedom as its highest ideal.
**Credit Only Granted for:** HNUH218B or HIST227.
**Formerly:** HNUH218B.

**HIST231 London and the British Empire (3 Credits)**
Focuses on the people, places, and policies that shaped the development of the British Empire, the single largest trans-cultural phenomenon in the world since 1500. Students examine how ideology, migration, technology and resistance shaped the expansion and eventual retrenchment of British imperial power in the Atlantic world and the Indian sub-continent. With the nation's capital as our classroom, students explore the complex workings and legacies of the British Empire from the perspective of its nerve center. The curriculum illuminates the experience of empire for subjects both in the colonies and the metropole and will pay particular attention to the maritime origins of empire, the lives of black Britons and the abolition of slavery, and the rise and fall of the British in India.
**Cross-listed with:** HONR231.
**Credit Only Granted for:** HIST219K, HONR249B, HONR231, or HIST231.
**Formerly:** HIST219K.

**HIST232 The Historical Development of London (3 Credits)**
Study Abroad in London, England. The history of London, beginning with its foundation by the Romans, continuing with the city's progressive political and cultural domination of England, the British Isles and the British Empire, and concluding with a look at the city in the 20th century. Students look at London through the eyes of contemporaries and historians while forming their own impressions of the city during course-based walking tours of the city.
**Restriction:** Permission of Study Abroad Office required.
**Credit Only Granted for:** GNED288 and HIST232.
**Formerly:** GNED288.

**HIST233 Empire! The British Imperial Experience 1558-1997 (3 Credits)**
Britain's empire from the mid-sixteenth century to the late twentieth century, focusing on the encounter between Britain and indigenous peoples. Topics include the origins of British imperialism in Ireland and North America, the slave trade, the East India Company and India, women in empire, transportation and the making of Australia, sex in empire, missionaries, racial theories, and decolonization.
**Credit Only Granted for:** HIST219P or HIST233.
**Formerly:** HIST219P.

**HIST234 Invaders, Conquerors, Usurpers: A History of Pre-Modern Britain to 1485 (3 Credits)**
British history from Roman times to the 15th century. The Anglo-Saxon, Scandinavian, and Norman invasions; the coming of Christianity; Magna Carta, the development of Parliament, legal institutions, and the Common Law; the decline of medieval kingship.

**HIST235 Divorced, Beheaded, Deposed: England and Britain 1485-1689 (3 Credits)**
British history from the War of the Roses to the Hanoverian succession; Yorkist and Tudor society and politics; the Renaissance and Reformation in England, Henry VIII through Elizabeth I; 17th-century crises and revolutions; intellectual and cultural changes; the beginnings of empire; the achievement of political and intellectual order.

**HIST236 From Peacocks to Punks: Modern Britain from 1688 to Today (3 Credits)**
British history from the Glorious Revolution of 1688 to the present. The revolution of 1688; the structure of 18th-century society and politics; economic and social change in the Industrial Revolution; 19th- and 20th-century political and social reform; imperialism; the impact of the First and Second World Wars on British society.

**HIST237 Russian Civilization (3 Credits)**
An overview of Russian history stressing the main lines of development of the Russian state and the evolution of Russian culture to the present day.

**HIST240 Europe in the Twentieth Century (3 Credits)**
Political, cultural, and economic developments in 20th-century Europe.
**Credit Only Granted for:** HIST240 or HIST337.
**Formerly:** HIST337.

**HIST245 Reformers, Radicals, and Revolutionaries: The Middle East in the Twentieth Century (3 Credits)**
The 20th century was a period of dramatic changes in the Middle East. Within the global context of the two World Wars and the Cold War, countries in the region struggled with the effects of colonialism and painful processes of decolonization. The course offers a thematic-comparative approach to issues such as social and political reform, nationalism, the colonial experience, independence struggles, models of governance, political violence, and Islamism. Course lectures and the analysis and discussion of primary sources will lead students to understand that the peoples of the Middle East found answers to the challenges posed by Western dominance based on their specific historical, cultural and socio-economic circumstances.
**Cross-listed with:** RELS219K.
**Credit Only Granted for:** RELS219K or HIST245.

**HIST247 Modern India: From the British Raj to the World's Largest Democracy (3 Credits)**
Surveys the making of modern India, as well as Pakistan and Bangladesh, from the onset of colonialism in the 18th century to the present day. Focuses on three key themes: state formation and the persistence of regional identities; the negotiation of religious, ethnic, caste, and gender differences; and economic development and inequality.
**Credit Only Granted for:** HIST219J or HIST247.
**Formerly:** HIST219J.

**HIST250 History of Colonial Latin America (3 Credits)**
Introductory survey of the history of Latin America from pre-Columbian Indian cultures to the beginning of the wars for independence (ca. 1810), covering cultural, political, social, and economic developments. Major themes include conquest, colonialism, indigenous culture, African slavery, religion, race and ethnicity, and gender ideologies.
**Cross-listed with:** LACS250.
**Credit Only Granted for:** LASC250, HIST250, OR LACS250.
**Formerly:** LASC250.

**HIST251 Latin America Since Independence (3 Credits)**
Introductory survey of the history of Latin America from the era of independence (c. 1810-1825) through the early 1980s. Major themes include independence and sovereignty, postcolonialism and neocolonialism, nation- and state-building, liberalism, citizenship, economic development and modernization, social organization and stratification, race and ethnicity, gender relations, identity politics, reform and revolution, authoritarianism and democratization, and inter-American relations.
**Cross-listed with:** LACS251.
**Credit Only Granted for:** HIST251, LASC251, or LACS251.
**Formerly:** HIST251 or LASC251.

**HIST254 African-American History to 1865 (3 Credits)**
Survey of the principal developments in the history and culture of the peoples of African descent in colonial North America and the United States to 1865. Examines the African past, the Atlantic slave trade, variation in slavery, the growth of free black communities, the transformations of families and cultural forms, and patterns of resistance.
**Cross-listed with:** AASP298C.
**Credit Only Granted for:** HIST254 or AASP298C.

**HIST255 African-American History, 1865 - Present (3 Credits)**
An introductory course in the African-American experience in the United States from 1865 to the present. Topics include the aftermath of the Civil War on US race relations, the rise of segregation, northern migration, World War I and II, Civil Rights Movements, and the Black Power Movement.
**Cross-listed with:** AASP255.
**Credit Only Granted for:** HIST255, AASP255 or AASP298A.

**HIST261 Medicine in an Age of Empires, 1500-1800 (3 Credits)**
An introduction to the broad shifts in European medicine of early modern period, a period that saw the extension of overseas empires and the emergence of medicine as a profession. The course offers a thematic and comparative look at the intertwined experiences of disease, empire, and global commerce that reshaped expectations of what medicine could or should do, for whom, and at what cost.

**HIST266 The United States in World Affairs (3 Credits)**
A study of the United States as an emerging world power and the American response to changing status in world affairs. Emphasis on the relationship between internal and external development of the nation.

**HIST269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**HIST281 Inventing Traditions: The Making of Rabbinic Judaism (3 Credits)**
Introduces the dramatic literary and cultural (as well as political and demographic) innovations that reshaped Judaism in late antiquity. Examines the fundamental works and genres of rabbinic literature and the religious movement that produced them. Special emphasis on the rabbinic uses of "tradition" to enhance authority and legitimacy, and to foster group identity.
**Cross-listed with:** JWST230, RELS230.
**Credit Only Granted for:** HIST281, JWST230, RELS219C or RELS230.
**Formerly:** RELS219C.

**HIST283 History of the Jewish People II (3 Credits)**
Political, economic, social, and cultural development within Jewish history from the end of Middle Ages to the present. Special attention to twentieth-century developments including the Nazi holocaust and its aftermath, the Zionist movement and the creation of the State of Israel; rise of the contemporary American Jewish community.
**Credit Only Granted for:** HIST283, HIST283H, JWST235, or JWST235H.

**HIST284 East Asian Civilization I (3 Credits)**
An interdisciplinary survey of the development of East Asian cultures. An historical approach drawing on all facets of East Asian traditional life, to gain an appreciation of the different and complex cultures of the area.

**HIST285 East Asian Civilization II (3 Credits)**
A survey of the historical development of modern Asia since 1700. Primarily concerned with the efforts of East Asians to preserve their traditional cultures in the face of Western expansion in the 18th and 19th centuries, and their attempts to survive as nations in the 20th century.

**HIST286 Urban Dreams and Nightmares: The Jewish Experience of Cities (3 Credits)**
Cities give expression to man's power while they highlight human limitations. It is urban social diversity that makes great wealth and thriving culture possible, but it also fixes discrimination behind walls constructed from paper and stone. Nations make cities symbols of the sacred and the glorious, while they ignore the poverty and social alienation that city life breeds. Jews, intensively urbanized for millennia, provide a special vantage point from which to study the beauty and the tragedy implicit in city-building. Our sources will include the Bible, poems, plays and novels but also US Supreme Court rulings and news of riots in Israel. We will survey how Jews have shaped, and been shaped by, the urban challenge over time and space.
**Cross-listed with:** JWST275.
**Credit Only Granted for:** HIST286 or JWST275.

**HIST287 Why the Jews? Historical and Cultural Investigations (3 Credits)**
Examines the history and culture of the Jews from the thirteenth century BCE/BC to the present through an examination of significant themes or problems (such as "religion" or "diaspora") that shape our understanding of the Jewish people. A primary focus in the course will be on texts, artifacts, and other cultural products by Jews and others that illustrate the history of the Jews help understand their cultural heritage.
**Restriction:** Must not have completed HIST282, HIST283, JWST234, or JWST235. Cross-listed with JWST233.
**Credit Only Granted for:** HIST287 or JWST233.

**HIST289A Jews, Christians, and Muslims in Medieval Spain: Tolerance, Oppression, and the Problematic Past (3 Credits)**
For 800 years, medieval Spain was home to one of the most religiously diverse societies in European history. Despite frequent hostilities, the interactions of Spanish Jews, Christians, and Muslims produced a flowering of science, theology, and literature in an often remarkably tolerant climate. Students will learn how medieval Spanish people themselves experienced interreligious contact and conflict. They will also discover the modern pressures, prejudices, and ideals that have shaped historians interpretations of medieval Spain.
**Cross-listed with:** RELS289C.
**Credit Only Granted for:** HIST289A or RELS289C.

**HIST289N The Politics of Sexuality in America: A Historical Approach (3 Credits)**
Why do particular issues about sexuality hold such an important place in American political debates? What animates these controversies and what can a historical perspective on these issues add to our understanding of modern sexual politics? This class explores the historical sexual politics that undergird contemporary debates concerning sexuality in America. It focuses on topics that garner significant public attention - Reproductive rights - LGBTQ rights - Sexting - and explores the histories that undergird Americans disagreements.
**Cross-listed with:** WGSS298N.
**Credit Only Granted for:** HIST289N or WGSS298N.

**HIST289O Lawlessness: From Pirates to Body-snatchers, Exploring the Legitimacy of Illicit Activity (3 Credits)**
Explores motives of and responses to the lawless behavior of pirates, body snatchers, bandits, vigilantes, smugglers and others worldwide from the 1500s to today.

**HIST289R Pocketbook Politics: A History of American Buying and Selling (3 Credits)**
Provides a thematic approach to consumerism as it emerged in the United States over the course of three centuries. The history of consumption is a prism through which many aspects of social and political life may be viewed. How does what we wear, what we listen to, or what we eat shape our identities?

**HIST289T Jesus, Mani, and Muhammad: The Dynamics of New Religious Movements (3 Credits)**
We examine three significant ancient religious figures: Jesus (d. 30s CE), Mani (d. 276 CE), and Muhammad (d. 632). All three were founders of long-lasting religions that were part of a dramatic change in the society and religion of the ancient world. Special areas of focus: the biographies of these founding figures, and how we know them; a historical approach to religious founders; and the sociology of new religious movements.
**Cross-listed with:** RELS273.
**Credit Only Granted for:** RELS273 or RELS289M or HIST289T.
**Formerly:** RELS289M.

**HIST289V What Does It Mean to be An American? (3 Credits)**
This course seeks to understand the on-going crisis over national identity and purpose by examining the many factors that go into the big stew known as America.

**HIST289Y Zombies, Fear, and Contagion: A Cultural History of Public Health, Medicine, and Technology (3 Credits)**
Historically examines how our fear of zombies reflects changing fears about the body, and anxieties about western medical and technological advancements.

**HIST290 Can Jews be Arabs? Identity and Crisis for the Jews of Arab Lands in Modern Times (3 Credits)**
For centuries, Jews inhabited the Islamic lands of the Middle East and North Africa. Their population has dropped from nearly one million a century ago to several tens of thousands today, mostly in Turkey and Iran. The vibrant and ancient Jewish communities of Iraq, Egypt, Syria, Morocco, Algeria, Libya, and several other countries were practically gone by 1970. One popular explanation for this exodus is that an "age-old schism between Jews and Muslims," in the words of the prominent historian Martin Gilbert, drove Jewish men and women to leave their historic homelands in the years following the first Arab-Israeli war of 1948. However, recent research into these communities offers a more complex picture of their lives in Islamic lands in the 19th and 20th centuries and subsequent departure.
**Cross-listed with:** JWST290.
**Credit Only Granted for:** JWST289A, HIST219C or HIST290.

**HIST291 Jewish Texts and Cultures of the Second Temple Period (3 Credits)**
An introduction to the literature, history, and culture of Jews in the period between the sixth century BCE and the second century CE. Special topics may include the rise of the formation of the biblical canon, scriptural interpretation, sectarian and revolutionary movements, and growth of the diaspora.
**Cross-listed with:** JWST231.
**Credit Only Granted for:** HIST291 or JWST231.

**HIST299 Directed Research (1-3 Credits)**
Closely guided research in primary sources for students currently enrolled in selected 100- or 200-level surveys in the Department of History.
**Restriction:** Permission of ARHU-History department.
**Repeatable to:** 9 credits if content differs.

**HIST304 The Baddest Decade: The 1970s in American Film and American History (3 Credits)**
The history of the United States and of its cinema in the 1970s.
**Cross-listed with:** CINE352.
**Credit Only Granted for:** CINE352, FILM352 or HIST304.
**Formerly:** FILM352.

**HIST306 History of Religion in America (3 Credits)**
A history of religion, religious movements, and churches in America from the early Colonial period to the present, with special attention to the relation between church and society.
**Cross-listed with:** RELS346.
**Credit Only Granted for:** HIST306 or RELS346.

**HIST307 The Holocaust of European Jewry (3 Credits)**
Roots of Nazi Jewish policy in the 1930's and during World War II: the process of destruction and the implementation of the "final solution of the Jewish problem" in Europe, and the responses made by the Jews to their concentration and annihilation.
**Cross-listed with:** JWST345.
**Credit Only Granted for:** HIST307 or JWST345.

**HIST310 History of South Africa (3 Credits)**
Explores the roots of Apartheid and the anti-Apartheid movement from precolonial times to the present: the social history of work and identity, the rise of kingdoms (Zulu, Sotho), conquest and colonial administration, urban and rural mass politics, gender relations, and the transition to democracy.
**Formerly:** HIST419E.

**HIST319 Special Topics in History (3 Credits)**
**Repeatable to:** 6 credits if content differs.

**HIST320 Early Christianity: Jesus to Constantine (3 Credits)**
Social and religious history of early Christianity from its origin in the first century to the reign of Constantine.
**Cross-listed with:** JWST331.
**Credit Only Granted for:** HIST320 or JWST331.

**HIST321 Biblical History and Culture (3 Credits)**
Study of the political, social, and religious development of the Jewish nation from its inception to its return from exile in Babylonia around 536 C.E. Focus on biblical texts, archeological finds, and source materials from neighboring cultures to reconstruct political history and the development of religious concepts.
**Cross-listed with:** JWST324.
**Credit Only Granted for:** HIST321, or JWST324.

**HIST324 Classical Greece (3 Credits)**
The ancient Greeks from Homer to Socrates, 800-400 B.C. Society and religion of the city-state, the art and literature of Periclean Athens, the Peloponnesian War, and the intellectual circle of Socrates.

**HIST325 Alexander the Great and the Hellenistic Age (3 Credits)**
History of the Greeks 400-30 B.C.: Alexander and the changes he wrought in the Mediterranean world; the rise of monarchies and leagues; new directions in religion, art, literature, and science; and Hellenization of the Near East, including the Jews.

**HIST326 The Roman Republic (3 Credits)**
Ancient Rome 753-44 B.C., from its founding to the assassination of Julius Caesar. Rome's conquest of the Mediterranean world, the social and political forces that brought it about, and the consequent transformation and decline of the Republic.

**HIST327 The Roman Empire (3 Credits)**
Roman history from Augustus to Heraclius, 44BC-641AD: The Imperial court and government; the diversity of culture in provinces and cities and the progress of Romanization; Roman religion and its transformation in late antiquity; the Roman army and defense of the frontiers.

**HIST328 Selected Topics in History (3 Credits)**
**Repeatable to:** 9 credits.

**HIST328D Inventing Ancient Greek Culture (3 Credits)**
Who were the ancient Greeks, and were they the founders of Western civilization' The course examines the foundations of ancient Greece. Through an analysis of the historical, archaeological, and linguistic evidence, it sheds light on the so-called Black Athena Controversy, which raised doubts about the ancient Greek contribution to Western culture. The course also focuses on the impact of modern identity politics on scholarly discussions of antiquity and the ways in which the Culture Wars of the 1980s and 1990s have influenced analyses of the ancient Greek world.
**Cross-listed with:** CLAS311.
**Credit Only Granted for:** CLAS311 or HIST328D.

**HIST328W Women in Classical Antiquity (3 Credits)**
A study of women's image and reality in ancient Greek and Roman societies through an examination of literary, linguistic, historical, legal, and artistic evidence; special emphasis in women's role in the family, views of female sexuality, and the place of women in creative art. Readings in primary sources in translation and modern critical writings.
**Cross-listed with:** CLAS320, WGSS320.
**Credit Only Granted for:** CLAS320, WMST320, WGSS320 or HIST328W.

**HIST329 Special Topics in History (1-3 Credits)**
**Repeatable to:** 9 credits.

**HIST330 Europe in the Making: The Early Medieval West (A.D. 300-1000) (3 Credits)**
From one empire to another: Rome to Charlemagne. This period is approached as a crucible in which classical, Christian, and Germanic elements merged, yielding new experimental syntheses. This course will deal with issues of authority, cultural trends, and the formation of group solidarity.
**Cross-listed with:** RELS340.
**Credit Only Granted for:** HIST330 or RELS340.

**HIST331 Europe in the High Middle Ages: 1000-1500 (3 Credits)**
Medieval civilization in the 11th through 15th centuries. Emphasis on cultural and political developments of the high Middle Ages with study of the principal sources of medieval thought and learning, art and architecture, and political theory prior to the Renaissance.
**Cross-listed with:** RELS341.
**Credit Only Granted for:** HIST331 or RELS341.

**HIST332 Renaissance Europe (3 Credits)**
Intellectual developments in Italy and Northern Europe from 1300 to 1550 and their influence on the arts and religion; social and economic trends, including the rise of the commercial economy in cities; the family and the role of women in society; expansion of Europe overseas and the beginnings of colonization; emergence of the state and consequent changes in political theory.
**Cross-listed with:** RELS342.
**Credit Only Granted for:** HIST332 or RELS342.

**HIST333 The European Reformations (3 Credits)**
Examination of developments in European religion between 1450 and 1700; the late-medieval Church and its critics; rise of Protestant thought in Germany and its spread throughout Europe; reform efforts in the Catholic Church; religious wars and violence and their impact on state and society; consequences of religious reform in society and its impact on the family and women.
**Cross-listed with:** RELS343.
**Credit Only Granted for:** HIST333 or RELS343.

**HIST338 Special Topics in History (3 Credits)**
Thematic exploration of a topic in history.
**Repeatable to:** 9 credits if content differs.

**HIST339 Special Topics in History (3 Credits)**
Thematic exploration of a topic in history.
**Repeatable to:** 9 credits if content differs.

**HIST339G Greek and Roman Athletics (3 Credits)**
The origin and evolution of athletics in ancient Greece and Rome studied as recreation, as play, as education, as a profession and as mass entertainment.
**Cross-listed with:** CLAS315.
**Credit Only Granted for:** CLAS315 or HIST339G.

**HIST339J Ancient Slavery and its American Impacts (3 Credits)**
Interrogates how slavery permeated the ancient Mediterranean societies of Greece and Rome. We will pay particular attention to how hierarchical inequalities are institutionalized, experienced, and represented and to how different marginalized and dominant groups interacted. Enslaved persons performed necessary labor in Greece and Rome and their work was essential for the formation of ancient society in agriculture, mining, domestic spaces, literature, finance, and government. Studying ancient slavery offers a chance to examine Greece and Rome from the bottom up, parsing the scant literary and material evidence for the lives and struggles of enslaved persons. We will practice several different approaches in order to tease out the systematic, economic, political, and personal effects of slavery in the ancient world. The United States of America was also founded as a slave society, and discussions of slavery in the Americas often look back to the ancient Mediterranean. The course will therefore conclude with a unit on how enslavers and abolitionists in the United States utilized and responded to slavery in antiquity.
**Cross-listed with:** CLAS340.
**Credit Only Granted for:** CLAS340 or HIST339J.

**HIST352 America in the Colonial Era, 1600-1763 (3 Credits)**
The founding of the English colonies in America and their European backgrounds, the reasons for the instability of colonial society to 1689 and the emergence of stable societies after 1689; the development of colonial regionalism, political institutions, social divisions, the economy, religion, education, urban and frontier problems in the eighteenth century.
**Prerequisite:** HIST200, HIST210, HIST213, or HIST254; or must have completed HIST156; or permission of instructor.

**HIST353 America in the Revolutionary Era, 1763-1815 (3 Credits)**
The background and course of the American Revolution and early nationhood through the War of 1812. Emphasis on how the Revolution shaped American political and social development, the creation of a new government under the Constitution, and the challenges facing the new nation.

**HIST354 Ante-Bellum America 1815-1861 (3 Credits)**
Traces how the strong nationalism after the War of 1812 transformed int the sectionalism that led to Civil War. The course concentrates on the controversies over slavery and other issues contributing to North-South antagonism, including Jacksonian democracy, capitalism, racism, immigration, manifest destiny and religious, social, and intellectual movements, each of which produced its own social tendencies and tensions.

**HIST355 Civil War and the Rise of Industrialization, 1860-1900 (3 Credits)**
Civil War, sectional and class conflicts and their impact on American life and institutions from the beginning of the Civil War through the Gilded Age; social, economic, and political reconstruction of the Union; industrialization, urbanization, and technological changes.
**Credit Only Granted for:** HIST355 or HIST364.

**HIST356 Emergence of Modern America, 1900-1945 (3 Credits)**
The emergence of modern institutions and identities, 1900-1945. These institutions may include corporate enterprises and the welfare state; identities include homosexuality, the New Woman, and the New Negro.

**HIST357 Recent America: 1945-Present (3 Credits)**
American history from the inauguration of Harry S. Truman to the present with emphasis upon politics and foreign relations, but with consideration of special topics such as radicalism, conservatism, and labor.

**HIST360 Women and the Civil Rights Movement (3 Credits)**
Twentieth-century U.S. civil rights movement from the vantage point of women, considering both women's involvement in the legal campaigns and political protests and the impact of civil rights struggles on women's condition, status, and identity.

**HIST361 Metropolitan Change and Modern America: Cities, Suburbs, Hinterlands (3 Credits)**
An exploration of the forces that have transformed metropolitan and rural life since the mid-19th century. What role have politics, policy, economics, and ideology/culture played in creating an urbanized and then a "suburbanized" nation?
**Credit Only Granted for:** HIST419B or HIST361.
**Formerly:** HIST419B.

**HIST369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**HIST370 Jews and Judaism in Antiquity I: Sixth Century BCE through the First Century CE (3 Credits)**
Political, social, and religious history of the Jews from the Persian period to the Judean revolt of 66-70 CE. Special attention to the rise of sectarian and revolutionary movements.
**Cross-listed with:** JWST325.
**Credit Only Granted for:** HIST370 or JWST325.

**HIST371 Jews and Judaism in Antiquity II: First through Seventh Century (3 Credits)**
Political, social, and religious history of the Jews from the destruction of the Jerusalem Temple in 70 CE to the Muslim conquests. Special attention to the political transformations in Judaism under late Roman Christianity, and the rise of the Rabbinic movement.
**Recommended:** HIST370.
**Cross-listed with:** JWST326.
**Credit Only Granted for:** HIST371 or JWST326.

**HIST373 Martyrs & Merchants, Lawyers & Mystics, Magicians & Messiahs: Jews Between Medieval and Modern Times (3 Credits)**
In an era marked by traumatic expulsions, inquisitorial barbarism, and enforced ghettoization, Jews reinvented themselves. Through their international networks of trade, Jews learned how to negotiate with kings and to govern new, large urban communities in new lands. They took advantage of the printing press to reorganize their literary traditions of law, biblical studies and mysticism, and created new hierarchies of religious status. And they flocked to hear new kinds of enthusiast preachers, celebrating the man they saw as the messiah finally come. We will together explore the contradictory forces that ultimately gave birth to the modern Jew.
**Recommended:** HIST287 or JWST233; HIST 332; .
**Cross-listed with:** JWST333.
**Credit Only Granted for:** JWST333 or HIST373.

**HIST375 Modern Jewish History II: World Jewry Since 1870 (3 Credits)**
Social, political, economic, and cultural change in the Jewish world since 1870. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 19th Century to the present.Cross-listed with JWST344.
**Credit Only Granted for:** HIST375 or JWST344.

**HIST376 History of Modern Israel (3 Credits)**
History of modern Israel since the beginning of the Zionist settlement in 1882. Attention to different interpretations and narratives of Israel's history, including the historical and ideological roots of Zionism, the establishment of the State of Israel, ideological forces, wars, and the triumphs and crises of democracy.Cross-listed with ISRL342.
**Credit Only Granted for:** HIST376 or ISRL342.

**HIST377 Mizrahi Identity in Israel (3 Credits)**
It is impossible to understand Israeli society today without examining the Mizrahi experience. Despite the common misconception that Israel is predominantly made up of Jews from European origin, the fact of the matter is that Jews of Mizrahi origin, whose parents and grandparents immigrated to Israel from the Middle East and North Africa, represent a major part of the Israeli population. Moreover, Ashkenazi-Mizrahi relations continue to be a major source of tension in Israeli politics, and issues of race continue to come up on social media and polarize the Israeli society. This course brings to light narratives of Mizrahi identity in Israel and explores the trajectory of the Mizrahi struggle for equality and against racism through its various milestones: the 1959 Wadi Salib Revolt, the Black Panthers Movement in the 1970s, the emergence of the Israeli Sephardi-Orthodox party Shas, and the new wave of Mizrahi activism in the 21st century.
**Cross-listed with:** ISRL330, JWST334.
**Credit Only Granted for:** JWST319D, JWST334, HIST377, HIST329Z, ISRL329M, or ISRL330.
**Formerly:** ISRL329M.

**HIST381 The Israeli Settler Movement: The Road to One State? (3 Credits)**
Explores the Israeli settler movement over the last four decades, from its position on the fringes of Israeli society in the 1970s and 1980s to its rise to prominence in Israeli politics today. Topics will include the history of the Israeli settlement project in the West Bank, the emergence of Gush Emunim and its ideological foundations in Jewish messianism, its violent offshoots, and the influence of the settler movement on the Israeli political system. Study of these topics illuminates some of the most important driving forces of modern history such as nationalism, religious fundamentalism, colonialism and the ability of a determined minority to influence a country's policies.
**Cross-listed with:** JWST332, ISRL344.
**Credit Only Granted for:** HIST329G, HIST381, ISRL329G, ISRL344, JWST332 or JWST319N.
**Formerly:** JWST319N.

**HIST382 Law and Culture in Late Imperial China (3 Credits)**
An exploration of Chinese law and its social/cultural implications in the late imperial period (1550s-1900s). Major interpretations of the conceptions of law and justice, the functioning of the judicial system, and local courts. An introduction to society and culture, politics and the bureaucracy, family and gender relations, and literature and popular religion of China through the lens of law.

**HIST383 City God, Dragon Boat, and Monkey King: Popular Culture and Society in Imperial China (3 Credits)**
Explores popular culture, society, and religion in China, with a focus on the late imperial periods (1368-1911). Together we will read and discuss a variety of (translated) primary sources and secondary sources, including the famous sixteenth-century popular novel The Journey to the West, which features the adventures of the powerful Monkey King in his quest for pleasure, immorality, and salvation. We will raise and address questions about popular culture, vernacular literature, folk religion, ritual operas, and everyday life of ordinary people in late imperial China.
**Credit Only Granted for:** HIST319A or HIST383.
**Formerly:** HIST319A.

**HIST386 Experiential Learning (3-6 Credits)**
The History Department's Internship program. Pre-professional experience in historical research, analysis, and writing in a variety of work settings.
**Restriction:** Permission of ARHU-History department; and junior standing or higher.

**HIST395 Honors Colloquium I (3 Credits)**
History and theory: the conceptual underpinnings of the historical discipline. Students evaluate several contrasting theories of history. Prerequisite for other honors courses.
**Restriction:** Permission of ARHU-History department; and must be in History program.

**HIST396 Honors Colloquium II (3 Credits)**
Uses a seminar approach to examine a major problem of historical interpretation across two or more diverse cultures in different periods. Topics vary and include: religion and society, the city in history, gender, slavery and emancipation, and modernization.
**Prerequisite:** Permission of ARHU-History department; or HIST395.
**Restriction:** Must be in History program.

**HIST398 Honors Thesis I (3 Credits)**
Individual research and preparation of History Honors Theses.
**Prerequisite:** HIST395 and HIST396.
**Restriction:** Must be in History Honors program.

**HIST399 Honors Thesis II (3 Credits)**
Individualized research and preparation of History Honors Theses.
**Prerequisite:** HIST395, HIST396, and HIST398.
**Restriction:** Must be in the History Honors program.
**Formerly:** HIST398.

**HIST401 Science and Gender (3 Credits)**
Examines the role of women and gender in the history of science. Includes consideration of barriers to women's participation in science; women's role as scientific subjects and researchers; and questions about the scientific construction of gender and the gendered construction of science.
**Credit Only Granted for:** HIST401 or HIST429R.
**Formerly:** HIST429R.

**HIST405 Environmental History (3 Credits)**
An introduction to the key issues and methods of environmental history. The scope of the subject is discussed, as well as its relationship with other disciplines, such as ecology, anthropology, and geography. A primary focus is environmental change in history with emphasis on the American experience.

**HIST406 History of Technology (3 Credits)**
The changing character of technology in modern history, beginning with the Middle Ages. Concentrates on the Industrial Revolution and its aftermath, the nature of technological knowledge and the sources of technological change.

**HIST407 Technology and Social Change in History (3 Credits)**
Social consequences of technological innovations and the ways in which societies have coped with new technologies.

**HIST408 Senior Seminar (3 Credits)**
A capstone course for history majors, designed to increase historical knowledge and the ability to analyze texts and arguments. Topics will focus on the literature of a particular field and primary-source research.
**Restriction:** Must be in History program.
**Repeatable to:** 6 credits if content differs.

**HIST412 History of Women and Gender in Africa (3 Credits)**
An examination of socio-economic and cultural change in Africa from the dawn of the colonial era in the 19th century to independence in the mid-twentieth century. Major focus on how African women understood and responded to the expansion of European empires, changes in the colonial economy, and impact of westernization and urbanization.
**Credit Only Granted for:** HIST412 or HIST428L.
**Formerly:** HIST428L.

**HIST415 Ideas and Politics in Europe Since 1900 (3 Credits)**
Examination of intersection of ideas and politics in Europe since 1900. Focus will be on advocates of liberalism, social democracy, fascism, Nazism, communism, and conservatism and their impact on politics and policy since 1900.

**HIST416 History of Slavery and the Slave Trade in Africa (3 Credits)**
Examines the history and impact of the slave trade on African states, societies, and economies. Investigates the meaning of slavery in Africa, the local uses of slavery there and Africa's connections to the Trans-Saharan, Red Sea, and Trans-Atlantic slave trades.
**Credit Only Granted for:** HIST416 or HIST419Y.
**Formerly:** HIST419Y.

**HIST417 Colonial Encounters: Natives, Spaniards, and Africans in the New World (3 Credits)**
An exploration of the discourses and practices of the Spanish colonial project in the New World and the ways in which Indians and Blacks were incorporated into or excluded from that project. Also examines native and African resistance and adaptation to Spanish rule, and the process of transformation and hybridization of Spanish, native and African cultures in Spanish America. An analysis of recent historiographical developments that have profoundly changed the understanding of the Spanish conquest and colonization of the New World.
**Recommended:** HIST220 and HIST250.
**Credit Only Granted for:** HIST417 or HIST428Y.
**Formerly:** HIST428Y.

**HIST418 Jews and Judaism: Selected Historical Topics (3 Credits)**
**Prerequisite:** HIST281, HIST283, HIST106, HIST286, or HIST282; or permission of instructor.
**Repeatable to:** 6 credits if content differs.

**HIST419 Special Topics in History (3 Credits)**
**Repeatable to:** 9 credits if content differs.

**HIST419Q Before the Holocaust: The Golden Age of Eastern European Jewry (3 Credits)**
An exploration of the history of the Jews of Eastern Europe from the period of the Polish Lithuanian Commonwealth until the Holocaust. Topics to be covered include religious, political, social, and cultural transformation of Jewish life in Eastern Europe in the context of the general political changes in the area.
**Cross-listed with:** JWST370.
**Credit Only Granted for:** JWST419E, JWST370, or HIST419Q.
**Formerly:** JWST419E.

**HIST421 Medieval Heresies (3 Credits)**
An examination of twelfth- and thirteenth-century heresies in the medieval West. Consideration of why so many heretics emerged, and how the church attempted to deal with them, and what effect their persecution had on Europe both then and later. Special attention given to groups that stood on the fine line between heresy and orthodox religion.
**Credit Only Granted for:** HIST408L or HIST421.
**Formerly:** HIST408L.

**HIST425 Imperial Russia (3 Credits)**
The rise and fall of the Russian Empire, Peter the Great to the collapse of tsarism in revolution. Emphasis on the evolution of autocracy, social groups, national identities, and cultural change.

**HIST428 Selected Topics in History (3 Credits)**
**Repeatable to:** 9 credits.

**HIST429 Special Topics in History (3 Credits)**
**Repeatable to:** 9 credits.

**HIST429X Tradition and Change: Jewish Religion in the Modern World (3 Credits)**
An exploration of the history of the different modern Jewish religious movements that developed in Europe, starting with messianic movements and ending with Reform and Orthodoxy. Emphasis will be placed on the influence of the academic study of Judaism on the development of modern Jewish religious ideologies and practices.
**Cross-listed with:** JWST347, RELS347.
**Credit Only Granted for:** RELS347, JWST347, HIST429X, or RELS419R.
**Formerly:** RELS419R.

**HIST430 Reformations in Politics, Religion, and Gender: England 1485-1603 (3 Credits)**
An examination of the political, religious, and social forces in English life, 1485-1603, with special emphasis on Tudor government, the English reformation, and the Elizabethan era.

**HIST431 Becoming Great Britain, 1603-1704 (3 Credits)**
An examination of the political, religious, and social forces in English life, 1603-1714, with special emphasis on Puritanism and the English revolutions.

**HIST436 Napoleon, the French Revolution and the World (3 Credits)**
An argument for the broad continuity between the revolutionary and Napoleonic wars.

**HIST437 Modern France from Napoleon to DeGaulle (3 Credits)**
The changing political and cultural values of French society in response to recurrent crises throughout the 19th and 20th centuries. Students should have had some previous survey of either Western civilization or European history.

**HIST441 Germany Since 1900 (3 Credits)**
Course places Nazism in context of German and European history. Topics include collapse of German democracy and the establishment of the Nazi dictatorship; the role of Hitler; the response of political, military, economic, diplomatic, legal, media, theological elites and the broader population; the mix of terror, consent and coercion; propaganda and Nazi culture; contours of Nazi racial ideology and anti-Semitism and their impact on domestic and foreign racial policy; the economic history of the Nazi regime; foreign policy from rearmament to launching World War II to expansion and defeat; Jewish policy from the years of persecution to those of extermination; Nazi policy in Eastern and Western Europe, towards the United States, and towards North Africa and the Middle East; why the Allies won World War II and why and how Nazi Germany was defeated; the nature of the Allied occupation after 1945; the Nuremberg war crime trials; aftermath of facing and avoiding the crimes of the Nazi regime in West and East Germany.

**HIST442 Twentieth-Century Russia (3 Credits)**
Russia and the Soviet Union from the fall of the tsars to the post-communist present. Impact of Leninism, Stalinism, and Soviet Communism on state, society, culture, and nationality.

**HIST450 American Capitalism: 1600-1900 (3 Credits)**
This course explores the transformation of economic life in what became the United States from pre-colonial times to 1900, with special emphasis on economic interactions among Native American, Mexican, and European societies; how and why capitalism took root and became dominant; economic dimensions of the Revolutionary and Civil Wars; why the North, South, and West followed distinct economic paths; the revolutions in transportation and communications; slavery as a business system; causes and consequences of industrialization; and trends in the distribution of wealth and income.

**HIST451 American Capitalism: 1900 to Present (3 Credits)**
An examination of the evolution of American capitalism from 1900 to the present, with special attention on the emergence of the United States as the world's leading economic power; the impact of big business on work and government regulation; causes and consequences of the Great Depression; the role of business in the two world wars; postwar growth followed by the decline of U.S. global competitiveness; why consumerism occupied a central role in U.S. history; the influence of economic theory on policymaking; realities and mythologies of Reaganomics and Clintonomics; and the economic impact of the digital revolution.

**HIST452 Diplomatic History of the United States to 1914 (3 Credits)**
American foreign relations from the American Revolution to the beginning of World War I. International developments and domestic influences that contributed to American expansion in world affairs. Analyses of significant individuals active in American diplomacy and foreign policy.

**HIST453 Diplomatic History of the United States from 1914 (3 Credits)**
American foreign relations in the 20th century. World War I, the Great Depression, World War II, the Cold War, the Korean War, and Vietnam. A continuation of HIST452.

**HIST454 Constitutional History of the United States: From Colonial Origins to 1865 (3 Credits)**
The interaction of government, law, and politics in the constitutional system. The nature and purpose of constitutions and constitutionalism; the relationship between the constitution and social forces and influences, the way in which constitutional principles, rules, ideas, and institutions affect events and are in turn affected by events. The origins of American politics and constitutionalism through the Constitutional Convention of 1787. Major constitutional problems such as the origins of judicial review, democratization of government, slavery in the territories, secession, and civil war.

**HIST455 Constitutional History of the United States: Since 1865 (3 Credits)**
American public law and government, with emphasis on the interaction of government, law, and politics, and the relationship between the constitution and social forces and influences, the way in which constitutional principles, rules, ideas, and institutions affect events and are in turn affected by events. Major crises in American government and politics such as Reconstruction,the rise of corporate power, civil liberties during wartime, the New Deal era, the civil disorders of the 1960s.

**HIST459 Society in America: Historical Topics (3 Credits)**
A consideration of selected aspects of American society from colonial times to the present. Special emphasis on regionalism, immigration, nativism, minorities, urbanization, and social responses to technological changes.
**Repeatable to:** 6 credits if content differs.

**HIST460 History of Labor in the United States (3 Credits)**
The American working class in terms of its composition; its myths and utopias; its social conditions; and its impact on American institutions.

**HIST462 Slavery, Sectionalism, and the U.S. Civil War (3 Credits)**
Slavery, sectionalism, and the coming of the Civil War. Resources and strategy of the Confederacy and the Union, the war's changing character, emancipation and its consequences, conditions on the home front, and the wartime origins of Reconstruction.

**HIST465 Oral History of Immigration (3 Credits)**
Uses oral history to explore experiences of migrants to the Washington, D.C. area since the mid-twentieth century in projects based on engagement with local immigrants.
**Credit Only Granted for:** HIST428M or HIST465.
**Formerly:** HIST428M.

**HIST466 Immigration and Ethnicity in the U.S. (3 Credits)**
Seminar exploring historical problems relating to US immigration, race, and ethnicity since 1848, with emphasis on cultural impacts of migration on immigrants, their children, and U.S. society.
**Credit Only Granted for:** AAST498L or HIST466.

**HIST467 Women and Reform Movements in the Twentieth-Century United States (3 Credits)**
Investigation of women's participation in such twentieth-century reform movements as the labor movement, the struggle for racial justice, social welfare reform, and women's movements. Will ask how race, class, and gender were implicated in the ways that women agitated for social political change.
**Recommended:** HIST201, HIST211, or HIST255.
**Credit Only Granted for:** HIST467 or HIST429E.
**Formerly:** HIST429E.

**HIST469 Study Abroad Special Topics IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**HIST473 History of the Caribbean (3 Credits)**
Offers a concise introduction to the history of the Caribbean regions from the Columbian voyages to the 20th century. Special emphasis is given to the dynamics of local social and cultural formations within the framework of the political and economic history of the Atlantic world.

**HIST476 Jews in Medieval Times 1000-1450 (3 Credits)**
Social and cultural life of Jewish communities spread throughout Islam and Christendom. Major topics include the Gaonate, kehila organizations, legal, rationalist, and mystical thought, and the context of rising animosity against Jews linked to the Crusades and changing Church doctrines.
**Recommended:** HIST282, HIST330, HIST331, or JWST234.
**Cross-listed with:** JWST432.
**Credit Only Granted for:** HIST476 or JWST432.

**HIST481 A History of Modern China (3 Credits)**
Modern China from 1644 to the People's Republic of China. Emphasis on the coming of the West to China and the various stages of the Chinese reaction.

**HIST482 History of Japan to 1800 (3 Credits)**
Traditional Japanese civilization from the age of Shinto mythology and introduction of continental learning down to the rule of military families, the transition to a money economy, and the creation of a townsmen's culture. A survey of political, economic, religious, and cultural history.

**HIST483 History of Japan Since 1800 (3 Credits)**
Japan's renewed contact with the Western world and emergence as a modern state, industrial society, and world power, 1800-1931; and Japan's road to war, occupation, and recovery, 1931 to the present.

**HIST484 Cultural History of the Chinese Revolutions (3 Credits)**
Examines the cultural origins, experience, and results of the Cultural Revolution in China.
**Recommended:** HIST481 or HIST285.
**Credit Only Granted for:** HIST419G or HIST484.
**Formerly:** HIST419G.

**HIST486 Social Issues in Modern China (3 Credits)**
Explores the problems surrounding family, community, and social life in modern China, including a focus on issues that affect groups and subcultures within the population. Examines as well the political system's capacity to regulate this complex society.
**Recommended:** HIST285; and HIST481.
**Credit Only Granted for:** HIST419N (Fall2007) or HIST486.
**Formerly:** HIST419N.

**HIST491 History of the Ottoman Empire (3 Credits)**
Survey of the Ottoman Turkish Empire from 1300 A.D. to its collapse during World War I. Emphasis on the empire's social and political institutions and its expansion into Europe, the Arab East and North Africa.

**HIST492 Women and Society in the Middle East (3 Credits)**
Examines the customs, values and institutions that have shaped women's experience in the Middle East in the past and in the contemporary Middle East.
**Recommended:** Prior coursework in Middle East studies or gender studies.
**Cross-listed with:** WGSS456.
**Credit Only Granted for:** HIST492, WMST456 or WGSS456.
**Formerly:** WMST456.

**HIST495 Women in Medieval Culture and Society (3 Credits)**
Medieval women's identity and cultural roles: the condition, rank and rights of medieval women; their access to power; a study of women's writings and the constraints of social constructs upon the female authorial voice; and contemporary assumptions about women.
**Cross-listed with:** WGSS455.
**Credit Only Granted for:** HIST495, WMST455 or WGSS455.
**Formerly:** WMST455.

**HIST499 Independent Study (1-3 Credits)**
**Restriction:** Permission of ARHU-History department.
**Repeatable to:** 6 credits.

# HISX - History Education Abroad

**HISX200 World of the Vikings (3 Credits)**
The history and worldview of pre-Christian Scandinavians as reflected in medieval textual sources and in poems and artifacts from the Viking Age (793–1066 CE). We examine Norse society, political structures, gender ideals, religion and mythology. You learn about Viking expansion, colonies and conquests. An essential part of this interdisciplinary course is dedicated to medieval Icelandic sagas and how Vikings are portrayed in modern public history and contemporary popular culture.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**HISX205 Rome: Republic and Empire (3 Credits)**
Explores the Roman Republic and Empire, from the development of Italic culture in the Bronze Age through the dissolution of the empire in late antiquity. Via primary sources, students examine the development of political forms and ideas in the Mediterranean and their impact on Rome, the relationship of art and literature to society and politics, and developments in the areas of religion, science, and the economy.
**Credit Only Granted for:** HISX205 or HIST269Y.
**Formerly:** HIST269Y.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**HISX207 Roman Civilization and Daily Life (3 Credits)**
Explores the daily life of the Roman people including daily habits, duties, pleasures, family life, and belief and value systems. Students will examine remnants of society left at Pompeii to learn about everyday life, and ultimately death, in the context of the ancient Roman world and integrate archaeological, art historical, and primary literary material into a single, coherent intellectual narrative in order to gain a complex understanding of Roman Civilization at its height.
**Additional Information:** This course is offered as part of the Maryland-in-Perugia study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMPerugia. Education Abroad processes registrations for this course on behalf of students.

**HISX300 Scandinavia in the Middle Ages: from Viking Warriors to Christian Knights (3 Credits)**
Focuses on the development of Denmark, Norway, and Sweden as kingdoms in the Middle Ages, both in terms of internal relations and contact, conflict, and exchanges with continental Europe and the wider world. We examine state building and law-making, Christianization and church organization, feuds, rebellions, and warfare, the Baltic crusades and forced conversion of pagans, literary and cultural developments, as well as migration and border-crossing. The aim of the course is to consider these phenomena in the intersection between cultural adaptation and domestic creativity; to what extent does Scandinavia adapt to wider European trends, and to what extent are they independently formed?
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**HISX301 History of Sweden in Europe and the World (3 Credits)**
Sweden's historical relationships to the Baltic Region, Europe and the US. We will look at the Great Power Era, the poverty and mass emigration of the 19th century, the internationally famous inter-war Middle Way; we will then consider Sweden's role in World War II and the Cold War, as well as the current impact of neoliberalism and globalization. Our focus, throughout, will be on Sweden's international profile and power, and the influence of this, in turn, on Sweden's national identity and future.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**HISX302 Barcelona: the City and its History (3 Credits)**
This is a course that emphasizes the historical development of Barcelona from Pre-Roman times until nowadays. Although this course has a dominant historical approximation, other disciplines will be also taken into account, such as art, literature, architecture and urbanism.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**HISX311 The History & Culture of Italian Food (3 Credits)**
Examines the relationship between food, culture and identity in Italy through a variety of readings, discussions, outdoor activities and tasting experiences. Traces the historical evolution of Italian food culture through a multi-disciplinary (historical, anthropological, sociological, geographical) approach, using food workshops to supplement lectures and class discussions.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

# HLSA - Health Services Administration

**HLSA300 Introduction to Health Policy and Services (3 Credits)**
A multidimensional view of public health policy and services. Through interactive discussion of assigned readings, team-based learning, and supplementary lecture, students will learn about the nature of and development of policy, public health policy, and financing and delivery of health care services. This course will place a significant emphasis on a team-based learning approach to understanding the health care system and health care reform.
**Prerequisite:** Must have completed or be concurrently enrolled in SPHL100 or PHSC300.
**Restriction:** Must be in Public Health Science program; and must have earned a minimum of 60 credits.
**Credit Only Granted for:** SPHL498P or HLSA300.
**Formerly:** SPHL498P.

**HLSA465 Redesigning Mental Health Services (3 Credits)**
Students will use Design Thinking to create, reshape, redesign and transform the ways in which mental health and wellness is perceived and addressed on the campus. This course will incorporate students and the UMD community as stakeholders in designing, planning and contributing to developing solutions that leverage existing mental health resources or create new pathways to improve mental health and wellness at UMD. Students will learn and use design thinking skills to enhance public health practice skills in project proposals and grant writing.
**Prerequisite:** HLTH366.
**Recommended:** EPIB301.

**HLSA484 Redesigning Health Care: Developing a Clinic to Meet Community Needs (3 Credits)**
Provides an opportunity for students to learn a key entrepreneurial skill, Human Centered Design Thinking, while helping to build, reshape, redesign and transform delivery of health care in the Mona Center, a new community center and clinic in Prince George's County. This new, modern vision for a health and wellness clinic embraces student involvement in designing, planning and contributing to innovative programs, solutions, and processes to improve the clinic's ability to meet community and patient needs by addressing the social determinants of health as well as traditional clinical health status. Students in the class will develop empathy for patients, providers and other stakeholders, define problems, select a specific problem for intervention, understand problems based on stakeholder input, ideate, reframe and suggest options to solve or address the problem, prototype solutions, test ideas, and make recommendations to inform implementation and ongoing measurement and monitoring of impact.
**Restriction:** Must have completed a minimum of 60 credits.
**Additional Information:** Selected class sessions will be on-site at local organizations such as Mona Clinic in Temple Hills, MD, HAIR Network shops in Hyattsville and the Sarvis Empowerment Cafe in Riverdale. The course also requires off-campus work at nearby locations.

# HLSC - Integrated Life Sciences

**HLSC100 Students in the University: Integrated Life Sciences (1 Credit)**
In a small classroom setting, Integrated Life Sciences students learn about academic resources on and off campus.
**Restriction:** Must be in the Honors College Integrated Life Sciences program.
**Credit Only Granted for:** EDCP108O, HLSC100, HONR100, or UNIV100H.

**HLSC102 Service-Learning in the Life Sciences (1 Credit)**
The Integrated Life Sciences (ILS) Honors Program includes a rigorous academic curriculum, a research requirement, a living-learning component, and a service-learning experience. Service has been a tradition since 2012 and was initiated by our students, who wanted service incorporated as part of the ILS mission and values. Our students have contributed more than 6,000 hours of their time and talent to campus and local organizations, and this experiential learning has provided an opportunity to apply classroom studies to the real world. In general, these service experiences are directly relevant to their future careers as life scientists, because they contribute to improved access for all people to quality health care, to engaging STEM education, and/or to sustainable environments. The service-learning experience is introduced in the fall semester of the first year of ILS in HLSC100, and completed with a 1-credit course in the spring.
**Prerequisite:** HLSC100.
**Restriction:** Must be in the Honors College Integrated Life Sciences program.

**HLSC207 Principles of Biology III Organismal Biology (3 Credits)**
The diversity, structure and function of organisms as understood from the perspective of their common physicochemical principles and unique evolutionary histories.
**Prerequisite:** BSCI160, BSCI161, BSCI170, and BSCI171; Or students who have taken courses with comparable content may contact the department.
**Restriction:** Must be in the Honors College Integrated Life Sciences program.
**Credit Only Granted for:** BSCI207, BSCI279D, or HLSC207.

**HLSC208 Integrative and Quantitative Concepts in Biology (3 Credits)**
Designed for entering students enrolled in the Honors College Integrated Life Sciences (ILS) program, this course uses an active learning approach to emphasize inquiry, critical thinking, quantitative reasoning, and hands-on data analysis. This course will cover a variety of bioinformatic related topics, including genome assembly and scaffolding, sequence alignment algorithms, epigenetics, a bioinformatic examination of the central dogma in molecular biology, gene finding, proteomic analysis, the evolution of molecules, cells and organisms, molecular switches, and biological networks.
**Prerequisite:** BSCI170.
**Restriction:** Must be in the Honors College Integrated Life Sciences program.
**Credit Only Granted for:** HLSC208 or HLSC280.
**Formerly:** HLSC208.

**HLSC217 The British Masters of Science (3 Credits)**
The British Masters of Science will look at the British Scientists who have been at the forefront of some of history's greatest advances and have shaped science as we know it today. This London study abroad program will explore these scientific masters in the city where they made their great contributions, visiting the places where they lived and worked to experience the historic foundations of science.
**Restriction:** Must be in the Integrated Life Sciences Honors Program.

**HLSC227 Topics in Scientific Integrity and Medical Ethics (1 Credit)**
Explores ethical issues related to scientific research and integrity as well as issues surrounding medical ethics such as use of limited resources, euthanasia, and physician-assisted suicide. This is a topics class, so we won't be going into detail of philosophical arguments, but we may bring them up as relevant. Moreover, especially as applied to medical ethics, there may be no "right" answer. Instead, we would like you to be able to think critically about the issue, and make a moral argument (as opposed to a logistical argument).
**Restriction:** Must be in a major in UGST-HCOL-Integrated Life Sciences Program.

**HLSC280 Integrative and Quantitative Concepts in Biology (3 Credits)**
Designed for entering students enrolled in the Honors College Integrated Life Sciences (ILS) program, this course uses an active learning approach to emphasize inquiry, critical thinking, quantitative reasoning, and hands-on data analysis. This course will cover a variety of bioinformatic related topics, including genome assembly and scaffolding, sequence alignment algorithms, epigenetics, a bioinformatic examination of the central dogma in molecular biology, gene finding, proteomic analysis, the evolution of molecules, cells and organisms, molecular switches, and biological networks.
**Prerequisite:** BSCI170.
**Restriction:** Must be in the Honors College Integrated Life Sciences program.
**Credit Only Granted for:** HLSC208 or HLSC280.
**Formerly:** HLSC208.

**HLSC322 Principles of Genetics and Genomics (4 Credits)**
Principles and mechanisms of heredity and gene expression, with a focus on the application of genomics to contemporary medicine, biotechnology, and societal issues.
**Prerequisite:** CHEM131, CHEM132, BSCI160, BSCI161, BSCI170, and BSCI171; or must have completed BSCI170, BSCI171 and two semesters of Chemistry.
**Restriction:** Must be in a major in UGST-HCOL-Integrated Life Sciences Program.
**Credit Only Granted for:** HLSC322 or BSCI222.

**HLSC329 Teaching Practicum in the Life Sciences (1 Credit)**
A guide and support for the undergraduate teaching assistants (UTAs) in the Integrated Life Sciences (ILS) honors living-learning program. UTAs will develop a greater understanding of teaching and learning in the life sciences, with a focus on the academic values of ILS, by exploring education research and theory, discussing learning strategies and techniques, and reflecting on their practice. Students take this course while serving as a undergraduate teaching assistant in the Integrated Life Sciences courses.
**Restriction:** By departmental permission only.
**Repeatable to:** 3 credits.

**HLSC374 Mathematical Modeling in Biology (4 Credits)**
Students will learn empowering mathematical techniques through the understanding of biological models. Models are chosen from a variety of biological disciplines. Mathematical skills that will be developed along the way include: solving non-linear difference equations, eigenvector analysis, and the implementation of these algorithms as computer models.
**Prerequisite:** MATH131, MATH136, or MATH141.
**Cross-listed with:** BSCI374.
**Credit Only Granted for:** BSCI374, BSCI474, or HLSC374.
**Formerly:** BSCI474.
**Additional Information:** The HLSC374 version of this course is restricted to students in the Honors College Integrated Life Sciences program.

# HLTH - Health

**HLTH106 Drug Use and Abuse (3 Credits)**
An interdisciplinary analysis of contemporary drug issues and problems. The course will examine physiological, psychological, social, philosophical, historical, legal and health aspects of drug use and abuse. Special attention will be focused on those general motivations for drug use that attend life on the college campus.

**HLTH124 Introduction to Behavioral and Community Health (1 Credit)**
Required of first semester Community Health majors to expose them to introductory-level concepts within the field of behavioral and community health as well as the Community Health degree program. Includes discussion on the delivery of behavioral and community health at the local, state, national, and global levels; career opportunities in the diverse sectors of the community health field; undergraduate programmatic information; and strategies for student success.
**Restriction:** Must be in a major within the SPHL-Behavioral & Community Health department.

**HLTH130 Introduction to Public and Community Health (3 Credits)**
An introduction to the theory and practice of public and community health. The influence of public health professionals on the past, present, and future health status of society through the examination of critical health issues will be described. Programming models, theories and policy development are included.

**HLTH140 Personal and Community Health (3 Credits)**
Meaning and significance of physical, mental and social health as related to the individual and to society; important phases of national health problems; constructive methods of promoting health of the individual and the community.

**HLTH170 The Corporate Footprint: How Industries Influence the Public's Health (3 Credits)**
As public health advocates strive to protect, promote and advance the health of our communities, they sometimes find their efforts in conflict with the activities of corporations and their industry associations. This course will provide an overview of how various industries from Big Pharma to Tobacco Corporations have launched successful campaigns to influence policymakers, counter science and at times mislead the public on the harms of products to the health of communities. Students will also contemplate whether the relationship between corporations and public health advocates can ever be collaborative rather than contentious.

**HLTH200 Introduction to Research in Community Health (3 Credits)**
An overview of specific components and steps involved in the community health research process. Content includes, foundations of research, sampling, measurement design, and analysis in a community context.
**Restriction:** Must be in a major within the SPHL-Behavioral and Community Health department.

**HLTH230 Introduction to Health Behavior (3 Credits)**
Psychological, social psychological, and sociological approaches to the following health areas: development of health attitudes and behavior, patient-provider interaction and the organization of health care.

**HLTH234 Global Health Messages: Understanding Exposure & Impact (3 Credits)**
Using a global perspective, this course teaches students to be critical consumers of current and historical health communication interventions. It also provides students with the skills to develop media interventions that target specific and general populations. Students will discover the array of diverse media messages that influence the health and well-being of individuals and communities.
**Restriction:** Must not be in the Community Health program.

**HLTH246 The U.S. Tobacco Epidemic (3 Credits)**
Tobacco is the leading cause of preventable death in the U.S. Course provides an overview of the tobacco epidemic including history, health effects, economic costs, policy, surveillance, and prevention, in addition to additional products like e-cigarettes, vaping and hookahs. .

**HLTH264 Tweets & Likes: Digital Health & Social Media (3 Credits)**
Examines the current and potential use of digital health and social media to influence public health. Provides an overview of knowledge, skills and terminology necessary to optimize the effectiveness of these technologies to contribute to the enhancement of individual and community health.
**Restriction:** Must not be in the Community Health program.

**HLTH285 Controlling Stress and Tension (3 Credits)**
Health problems related to stress and tension. Analysis of causative psychosocial stressors and intervening physiological mechanisms. Emphasis on prevention and control of stress through techniques such as biofeedback, meditation and neuromuscular relaxation.

**HLTH289 Topical Investigations (1-3 Credits)**
Independent study by an individual student or an experimental course in special areas of knowledge not covered by regularly scheduled courses.
**Repeatable to:** 6 credits if content differs.

**HLTH292 Community Health Engagement (3 Credits)**
An exploration and application of basic community health concepts. An integral part of the course is service learning, that includes evaluating, planning and implementing a community health program with a local community partner.
**Restriction:** Must not be in Community Health program.

**HLTH302 Methods of Community Health Assessment (3 Credits)**
Examination of research and evaluation tools that can be applied to community health promotion. Includes the application of qualitative research methods, community needs and strengths assessments, asset mapping, and monitoring and evaluating process, outcome and impact evaluation.
**Prerequisite:** Minimum grade of C- in HLTH200 and EPIB301.
**Restriction:** Must be in a major within the SPHL-Community Health Department.

**HLTH306 Macro Level Influences on Community Health (3 Credits)**
An examination of the effects and influences of policy decisions at the local, state and national levels on community health delivery. Historical and contemporary policy issues will be included with a focus on how the policies have impacted community organizations and the overall health of communities.
**Prerequisite:** Minimum grade of C- in HLTH124.
**Restriction:** Must be in a major within the SPHL-Behavioral & Community Health department.

**HLTH325 Poor in America: Health and Wellbeing (3 Credits)**
Using the ecological framework, students will explore the complicated relationship between poverty and health and well-being in the United States.
**Recommended:** HLTH130; or HLTH140.

**HLTH352 Portrayal of Drug Use and Addiction on Screen: Does Hollywood get it Right? (3 Credits)**
Through comparative analysis of public health research evidence with portrayals used in film, the student gains a deep understanding of substance abuse, its consequences, and theoretical foundations of its biopsychosocial etiology and radiating effects on families, communities and society.

**HLTH364 Social Media & Digital Tools for Community & Public Health (3 Credits)**
Examination of the characteristics and uses of media platforms and digital technologies to expand the capability to identify and reduce community and public health risks at all levels of prevention. Also considered will be the potential threats these new media can play on individual choice, privacy, confidentiality, and social influence -- which themselves can pose health threats to community and public health.
**Prerequisite:** Completion of HLTH230 with a C- or higher.
**Restriction:** Must be in a major within the SPHL-Behavioral and Community Health department; Restricted to majors who entered the program in Fall 2018 or later.

**HLTH366 Behavioral and Community Issues in Public Health (3 Credits)**
The exploration of how social and behavioral science theories and public health concepts and methods can be applied to both the health-illness experience and community interventions.
**Prerequisite:** HLTH130, HLTH230, PSYC100, SOCY100, SOCY105, or ANTH260.
**Restriction:** Must be in Public Health Science program; or permission of SPHL-Behavioral & Community Health department. And must have earned a minimum of 45 credits.
**Additional Information:** This course will initially be restricted to Public Health Science (PHSC) majors, but could ultimately be opened to other majors, particularly those in HLTH.

**HLTH371 Communicating Safety and Health (3 Credits)**
The communication and evaluation of safety and health information. Emphasis on various types of communications and recipient factors which contribute to their success or failure.
**Restriction:** Must be in a major within SPHL-Behavioral & Community Health department.

**HLTH374 Drugged, Drowsy & Distracted Driving: traffic safety issues for the new millenium (3 Credits)**
An in-depth examination of the current status of research, historical trends and policies regarding impaired driving. Designed to provide exposure to the research process for understanding the behavioral factors that contribute to impaired driving in our society.
**Prerequisite:** Minimum grade of C- in HLTH200 and HLTH300.
**Restriction:** Must be in Community Health program.

**HLTH377 Human Sexuality (3 Credits)**
The biological and developmental aspects of human sexuality; the psychological and emotional aspects of sexual behavior; sexual identity; the historical, cultural, social, linguistic, legal and moral forces affecting sexual issues; the importance of communication, disclosure and intimacy in interpersonal relationships; and research trends in the area of human sexuality.

**HLTH386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Permission of SPHL-Behavioral & Community Health department.
**Restriction:** Junior standing or higher.

**HLTH389 Topical Investigations (1-3 Credits)**
Independent study by an individual student or an experimental course in special areas of knowledge not covered by regularly scheduled courses.
**Repeatable to:** 6 credits if content differs.

**HLTH391 Making a Difference: Applying Community Health (3 Credits)**
The exploration and application of community health concepts including theoretical models, advocacy, cultural competency, asset mapping, and needs assessment. Includes planning, implementing and evaluating a community health program with a designated community partner.
**Prerequisite:** SPHL100, HLTH124, HLTH140, HLTH200, HLTH230, EPIB301, EPIB315, BSCI170, BSCI201, and HLTH302. Students must have completed or be concurrently enrolled in HLTH364.
**Corequisite:** HLTH490.
**Restriction:** Must be in a major within the SPHL-Behavioral and Community Health department.

**HLTH399 Community Health Field Work (1-6 Credits)**
Students will gain practical experience under conditions conducive to educational and professional development. The internship is a supervised period of community/public health activities, carried out in a relevant professional organization, that emphasizes the application of theory and previous coursework.
**Prerequisite:** Minimum grade of C- in HLTH124, HLTH140, and SPHL100.
**Restriction:** Must be in Community Health program; and must have earned a minimum of 45 credits.
**Repeatable to:** 6 credits if content differs.
**Additional Information:** Students will have the opportunity to be matched with regular DBCH partners who have requested an intern for the designated semester. Most field work experiences will be off-campus.

**HLTH402 Disability is Not an Outcome: An Introduction to Understanding Disability (3 Credits)**
With an intent to disrupt traditional understandings of disability as a health outcome to be prevented, this course will introduce students to disability as an identity, a community, a population of interest to public health professionals. To change this understanding students will explore historical representations of disability, ableism, and lived experiences of people with disabilities. Disability is a multi-layered concept that broadly describes a wide range of people. Although geared toward public health scholars, the mix of readings, discussions, and assignments will help students reflect and integrate learning into their own fields of study. The course examines factors that led to systemic oppression, and methods and strategies of moving toward a more inclusive society.

**HLTH410 Honors Seminar (3 Credits)**
Undergraduate majors with a strong academic record are provided the opportunity to engage in challenging educational experiences related to the social and behavioral aspects of public health. Students will learn the skills and knowledge to develop, propose, defend, and complete an honors thesis or honors project.
**Prerequisite:** HLTH200; and must have completed 2 other courses in HLTH.
**Restriction:** Minimum cumulative GPA of 3.5; and must have completed 45 credits before applying.

**HLTH420 Effective Strategies for Public Health Practice (3 Credits)**
The purpose of this course is to present the interrelationships of curriculum planning, methodology and the selection and use of successful public health presentation strategies. Special problems associated with public health presentations are discussed, and students become familiar with a variety of resources as well as with planning for and implementing demonstration presentations.
**Prerequisite:** Minimum grade of C- in HLTH140 and HLTH230 .
**Restriction:** Must be in a major within the SPHL-Behavioral and Community Health department.

**HLTH424 Lesbian, Gay, Bisexual & Transgender Health (3 Credits)**
The preparation of students to be knowledgeable advocates for the health of lesbian, gay, bisexual, and transgender (LGBT) populations. Course focus is defined by the Healthy People 2020 federal health objectives for LGBT populations: data collection for research, culturally competent healthcare, bullying in schools, suicide, homelessness, and sexually transmitted diseases including HIV.
**Recommended:** Students should have some familiarity with basic psychology, sociology and/or epidemiology.
**Restriction:** This course is restricted to students who have completed a minimum of 60 credits. Jointly offered with HLTH624.
**Credit Only Granted for:** HLTH424 or HLTH6 24.

**HLTH430 Health Education in the Workplace (3 Credits)**
A survey of the role of health education in work settings. Examination of occupational stress, the health effects of shift work, women's health in the workplace, health education approaches to informing workers and management, and health promotion programs in the workplace.

**HLTH431 Health Literacy in Action (3 Credits)**
This course introduces the concept of health literacy and develops the knowledge and skills to understand the field and engage productively about health literacy with healthcare providers, systems, and policy makers. The class explores diverse perspectives about health information and communication, and different pathways and strategies to help create the conditions for more informed and engaged individuals and communities.
**Recommended:** HLTH 371; or equivalent.
**Repeatable to:** 0 credit.
**Credit Only Granted for:** HLTH431 or HLTH498L.
**Formerly:** HLTH498L.

**HLTH432 Medical Terminology (3 Credits)**
Provides the framework for understanding medical language and terminology used by health care professionals. Students will gain an understanding of the rules of building and analyzing medical terms from word origins and will learn correct pronunciation, definitions, and spelling for all of the body systems, major pathological conditions, common disorders, prescribed medications, and more. Whether a student is interested in learning more about the medical field or they want to acquire practical knowledge for future personal use, this course provides the foundation for understanding the language of medicine.
**Credit Only Granted for:** HLTH432 or HLTH498T.
**Formerly:** HLTH498T.

**HLTH434 Introduction to Public Health Informatics (3 Credits)**
Provides an overview of the field of public health informatics and the influence of technology on the public's health and well-being. Emphasizes the application of various technologies and computer/internet applications to support public health research and practice, including strategies to address new and emerging threats.
**Restriction:** Must be in one of the following programs (Community Health; Public Health Science) ; and must have earned a minimum of 60 credits.
**Credit Only Granted for:** HLTH434 or HLTH498E.
**Formerly:** HLTH498E.

**HLTH452 Global Health and Social Justice (3 Credits)**
Evaluates the relationship between social justice and population health through critical discourse analysis of social determinants of health and applications of community-based methods for reducing population health inequities within and across national borders. The class aims to stimulate students' critical analysis to identify, describe, measure and apply consequences of injustices in population ill-health exposures and practices (policies, interventions and services). Students will apply critical thinking about how social injustices create preventable health disparities, unequal social determinants, poor environmental exposures and diseases among vulnerable populations in much of low-income countries.
**Jointly offered with:** HLTH602.
**Credit Only Granted for:** HLTH452 or HLTH602.

**HLTH460 Multicultural Population Health (3 Credits)**
Health concerns of U.S. ethnic minority groups and factors placing them at elevated risk for disease and injury. Health education concepts and strategies to reduce disparities between their health status and the health status of the general population.
**Prerequisite:** HLTH140, HLTH230, or HLTH366; or permission of SPHL-Behavioral & Community Health department.
**Restriction:** Must be in a major within the SPHL-Behavioral & Community Health department; or must be in the Anti-Black Racism Minor.

**HLTH471 Women's Health (3 Credits)**
The women's health movement from the perspective of consumerism and feminism. The physician-patient relationship in the gynecological and other medical settings. The gynecological exam, gynecological problems, contraception, abortion, pregnancy, breast and cervical cancer and surgical procedures. Psychological aspects of gynecological concerns.
**Cross-listed with:** WGSS471.
**Restriction:** Must be in a program in the Harriet Tubman Department of Women, Gender, and Sexuality Studies; or must be in a major within SPHL-Behavioral & Community Health department.
**Credit Only Granted for:** HLTH471, WMST471, or WGSS471..
**Formerly:** WMST471.

**HLTH489 Field Laboratory Projects and Workshop (1-6 Credits)**
A course designed to meet the needs of persons in the field with respect to workshop and research projects in special areas of knowledge not covered by regularly structured courses.

**HLTH490 Professional Preparation in Community Health (3 Credits)**
The development of skills necessary for joining the public health work force post-graduation, as well as assistance in obtaining an appropriate internship that will serve as a final semester, capstone experience. Students will be exposed to various relevant professional experiences, and will be afforded the opportunity to strengthen their own individual skills by selecting from a menu of skills-based learning modules that best suit their perceived needs.
**Prerequisite:** Minimum grade of C- in EPIB301, EPIB315, SPHL100, HLTH124, HLTH140, HLTH200, HLTH230, HLTH302, BSCI170, BSCI171, and BSCI201; and students must have completed or be concurrently enrolled in HLTH364.
**Corequisite:** HLTH391.
**Restriction:** Must be in a major within the Behavioral and Community Health department.

**HLTH491 Community Health Internship (12 Credits)**
Integrating theory with practice in a community health setting.
**Prerequisite:** Minimum grade of C- in HLTH420 and HLTH490.
**Restriction:** Must have completed all program requirements and be in the last semester of the Community Health degree program.

**HLTH492 BS/MPH Community Health Internship (9 Credits)**
Integrating theory with practice in a community health setting.
**Prerequisite:** Minimum grade of C- in HLTH490.
**Restriction:** Must be a Community Health major who has been admitted to the combined BS/MPH degree program.

**HLTH498 Special Topics in Health (3 Credits)**
Topics of special interest in areas not covered by regularly scheduled courses.
**Repeatable to:** 6 credits if content differs.

# HNUH - University Honors

**HNUH100 Gateway Seminar (1 Credit)**
First-semester orientation and exploration seminar required of all UH students.

**HNUH218A Pursuits of Happiness: Ordinary Lives in the American Revolution (3 Credits)**
Dedicated to telling the stories of ordinary people in the American Revolution, to recovering the voices and experiences of all the founders of this country whose lives and contributions have been obscured by our tendency to worship a dozen or so well-to-do and well-educated men in suits as if they alone conceived and executed the American Revolution and the founding of the United States. So we'll be talking this semester about the marginalized, the downtrodden, the rank and file, the rabble - all the people who never make it onto monuments or money. The point of this is to allow us all to recognize the fundamental fact that fighting a Revolution is a collective act that requires a genuine mass movement. Declaring independence on a piece of parchment on a summer's day in Philadelphia in 1776 doesn't mean anything unless tens of thousands of people are willing to support that cause and fight to make it a reality. To revolt, then, is not an individual act - it's for crowds, for mobs, and for whole communities to do together. Declaring independence is a fundamentally cooperative act.
**Credit Only Granted for:** HNUH218A or HIST137.

**HNUH218B Frederick Douglass's America (3 Credits)**
What does it mean to be free in the United States? The concept of freedom was embedded in the nation's political culture in the Declaration of Independence, and it has remained a cherished and contested ideal. We can interrogate this concept through the life and times of Frederick Douglass (1818-1895), who dreamed eloquently of freedom, thought carefully about its limits, and worked ardently to build a firmer freedom for a broader population. With Douglass as our guide, we will examine the survival of slavery in a nation built on freedom, images of the expanding United States as a land of opportunity, and the complex meanings and tremendous costs of freedom struggles during the nineteenth century. This history will push you to think critically about the contested concepts that shape our lives, and to consider the values and the perils of a society that positions freedom as its highest ideal.
**Credit Only Granted for:** HNUH218B or HIST227.
**Formerly:** HNUH218B.

**HNUH218C Globalizing the American Revolution (3 Credits)**
How is the American Revolution a creation story in the making of our multi-cultural and interconnected modern world? Consider the Declaration of Independence. When first published on July 5, 1776, it was printed by an immigrant Irishman on Dutch paper that had been brought over from England. This was the first such declaration of independence ever issued, but its ideas and forms traveled far and wide. More than 100 other declarations of independence have been issued since then. The people that declaration mobilized are similarly diverse: the American Revolution is as much the story of Creek farmers, Spanish soldiers, French slaves, Canadian fugitives, Indian tea-growers, and African statesmen as it is of the Minutemen and Sons of Liberty. In this globe-trotting class, students will be positioned to debate how the familiar story of the American Revolution changes when we place it in transnational context.
**Cross-listed with:** HIST223.
**Credit Only Granted for:** HNUH218C or HIST223.

**HNUH218Q Science, Fiction, and our Environmental Future (3 Credits)**
What will the world look like in 2070? Bladerunner imagined the Earth's environment as desolate and inhumane. Black Panther shows us a country where technology and the natural world are in balance. Such scientifically charged fictions have long helped us face our fears about the future. If we hope to find 'greener' alternatives to our present courses of climate change and biodiversity loss, we must again look to the creative flights of fiction, as well as science. This course explores how science fiction can inform future visioning by expressing and challenging ideas about nature, culture, society, and politics. We will read and watch science fiction sub-genres of future scenarios to understand how science fiction thinking is applied in environmental science, design, and planning. The course challenges students to think about how 'smart', 'just', 'green' and 'resilient' visions can be integrated into sustainability transitions informed by collaborations between science and fiction.

**HNUH218U Finding Feminist Freedom (3 Credits)**
"I'm the one that'll make you pay." So goes one verse of what has become a Latin American feminist hymn, "Cancion sin miedo" ("Fearless Song," by Vivir Quintana). Transnationally, feminists today--particularly in the Global South--are on fire: militant, unafraid, angry, and, above all, driven by a desire to build a world where the promise of freedom for all is finally fulfilled. But what is freedom? Is freedom an abstract concept or a lived experience? Is it individual or collective? What is the meaning of 'feminist freedom'? These questions will be gauged by discussing, analyzing, and interpreting texts in feminist theory; decolonial and transnational feminist approaches; and feminist film, documentary, performance, and protest. At the end of the course, you will have learned that there is not one feminism, but many, become familiar with feminist theory and practice, and be equipped to live your own version of a feminist life.

**HNUH218V Black Bodies and Green Spaces: From 1619 to Today (3 Credits)**
From the antebellum plantation slave, who used uncultivated land as a place of deliverance, healing and route to freedom, to the Central Park bird watcher, whose green space presence was perceived as a threat to White physical safety, black bodies have a vexed relationship to green space. This course critically examines how systemic racism has shaped the experience, connection, and relationship to nature among Black Americans. Students will conduct in-depth analysis, critical thinking, and discussion on topics ranging from slavery and nature; The Great Migration; and Jim Crow, segregation, and parks; to green space inequity and "Moving While Black" (Treyvon to Ahmaud). While some environments (built, natural, virtual) within the United States have represented the essence of anti-Black racism and indignity, this course will further explore how many Black Americans still regarded nature as a space of freedom, humanity, and spirituality.

**HNUH218W Freedom and Captivity: Prisons, Punishment, and Citizenship (3 Credits)**
What does freedom mean if you're incarcerated? How is freedom, citizenship, and social membership mediated through the power of the state? What are the implications of punishment on how freedom is constructed, understood, and experienced? The United States purports to be a beacon of freedom while simultaneously incarcerating more people than any other country in the world. Throughout the course, we will discuss the writings of scholars, theorists, historians, and--most importantly--incarcerated people to interrogate the concept of "freedom" from the vantage point of the prison. Students will use these insights to analyze the complex tensions and relationships between social ideals and practice.

**HNUH218X Uprising, Riot, Revolt: Violence in Story and Theory (3 Credits)**
How does violence connect to revolution? Is violence the result of lone wolf actors, oppressive social structures, or just blind fate? Is it a side-effect of revolution or its driving force? Is violence a way to fight injustice, or is it a problem of evil? Why is one person's uprising another person's riot? In this seminar, we will explore literature, politics, and religion to debate the meaning and causes of violence. By examining the writings of a prison psychiatrist, historians, activists, theorists, and theologians alongside classic and contemporary literary works, we will disrupt common understandings of violence. In conducting interviews with community members, engaging in classroom debate, and sharing ideas in a project-poster session, we will investigate violence in the UMD community and wider DC area, and propose ways toward revolutionary change.

**HNUH218Z Soundtrack to Revolution: Black Protest Music from Slave Ship to Soundcloud (3 Credits)**
Invites students to hear a tradition of black protest music that reverberates from the slave ship to Soundcloud and beyond. Together we will ponder how black people have created, performed, broadcast, and mobilized music for protest, self-making, community-building, cultural critique, agitation, venting, healing, and joy. To hear what protest music sounds like, we will listen to Paul Robeson, Mahalia Jackson, Billie Holiday, Abbey Lincoln and Max Roach, Nina Simone, Fela Kuti, Marvin Gaye, Aretha Franklin, Bob Marley, Michael Jackson, Public Enemy, NWA, Lil' Kim, Lauryn Hill, Beyonce, and others. Must protest music set overt political statements to melody? How have black people mobilized music and art to shape their political conditions? What can music accomplish that artforms like literature and visual art cannot? How have various social justice and liberation movements deployed music? How has new media technology transformed protest? How does revolution sound to you?

**HNUH219P Transform Maryland: Management Consulting Internship (3 Credits)**
This three-credit internship, open to all majors, offers a fully immersive consulting experience that affords undergraduate students the opportunity to engage with a real client. Working in dynamic teams, students learn advanced management consulting strategies, and apply critical thinking and solution design to real world cases, all while developing general professional acumen. The internship innovates real University of Maryland business processes. Managed by senior members of the DIT's Enterprise Planning and Continuous Improvement unit, the internship matches teams with top-tier professionals and a senior university administrator as a project client. Supported by professional coaching from practicing talent managers and management consultants, students research and benchmark against other schools, analyze and synthesize results, and formulate actionable recommendations for the client. The internship culminates in a recommendation pitch to campus leadership.

**HNUH219T Transform Maryland: Consulting Practicum (3 Credits)**
In this experiential learning opportunity, a team of students undertakes a real-world practicum to develop consulting skills and improve an operational process at the University of Maryland. A new project is selected each semester and the course culminates in a presentation to key members of the UMD leadership team. Through concepts drawn from multiple disciplines, students learn and apply an analytical, systems approach to problem solving. Working with oversight from experts in the industry, students partner with university officials to understand and map a business process that affects students, identify opportunities for process innovation, and apply user-centered design to develop a persuasive narrative to recommend solutions and leverage the potential for technology to streamline the process. This practicum prepares students to consult for real-world change, while practicing competencies they will use in their professional internship experience the following semester (HNUH219P).

**HNUH228A Peace in our time? Conflict and Conflict Resolution in International Politics (3 Credits)**
Is the world getting more peaceful? Wars rage in much of the world, leading millions of people to flee as refugees or internally displaced persons. Terrorist attacks kill thousands, and can occur in any corner of the planet. At the same time many actors use strategies such as peacekeeping, mediation, and human rights promotion to resolve conflicts and build peace. In this course, we examine conflict, peace, and conflict resolution in contemporary international politics. We interrogate concepts such as peace, conflict, and violence and the different forms they take. We discuss theoretical explanations for why individuals and groups have disputes and why they choose to use violence (or not) in these disputes. We analyze conflict resolution strategies such as mediation and peacekeeping theoretically and empirically. This discussion prepares students to develop an argument for whether the world is getting more peaceful and what this could mean about the future of violence and peace.
**Credit Only Granted for:** HNUH228A or GVPT211.
**Formerly:** HNUH228A.

**HNUH228B Redesigning Life: Prospects and Consequences (3 Credits)**
What is at stake for our world as humans seek to redesign biological organisms? Biotechnology advances are enabling us to read, edit and write genomes, including our own. This revolution has been fueled by the quest to understand and cure disease. Yet, these innovations have far-reaching consequences beyond medicine and will reshape our world in ways we can only imagine - or fear. The course will challenge students to confront the risks and rewards for them, their family, their community, and their future, as biotechnology moves out of specialized laboratories and into homes. A demystifying, low-tech approach will introduce them to contemporary genome redesign, clarifying the current limitations and future goals of the field. Students will debate whether redesigning plants and animals will enhance or inhibit momentum in human genome engineering, and formulate their own arguments about who should be able to use these tools and where, who decides, and how much society is willing to risk.

**HNUH228U A Life Worth Living: The Legacy of Eugenics in Genetics (3 Credits)**
Should parents be able to choose their child's eye color? Or alter their child's genome to eliminate a hereditary disability? While these might seem like different concerns, both are eugenic questions. In this class students will learn about the legacy of eugenics and its role in the development of genetics by analyzing science fiction works through the lens of disability studies. We'll explore the past to identify who has historically been considered "fit" and look to the future to consider what kinds of embodiments, and life experiences, society seems willing to let disappear.

**HNUH228V At What Cost? An Examination of the Societal and Ethical Impact of Modern Biological Research (3 Credits)**
The results of modern biological research are pervasive - from cutting edge medical treatments, to debates about mandatory vaccination, to genetic engineering breakthroughs. This course will examine the social, ethical, and biological costs of research. The focus will be on the larger issues that surround the biology - questions of ethical research, the perception of science versus reality, the intersection of science and society, and even we may need to reconsider the meanings of "self" and "human". Students will reflect on the lessons learned to propose how research can proceed in a way that balances the demands of discovery with social justice and the ethical use of animals and the environment.

**HNUH228W Planetary Protection vs. Planetary Imperialism (3 Credits)**
International space agencies, such as NASA, ESA, and CNSA, continue to push the boundaries of deep space exploration, buoyed by public excitement, scientific ambition, and political motivation. However, the invasion of alien environments warrants an ethical consideration. What are the risks of forward contamination? What are the potential consequences of reverse contamination? How do we avoid a "space race" incentivized by imperialism? What happens next if we do discover life on another planetary body? This course equips students to grapple with such questions in light of the current state of planetary science, world affairs, and the near-term prospects for the commercialization of spaceflight.

**HNUH228X How to Wage War Without Firing A Single Shot: A History of Soft Power and the Cold War (3 Credits)**
If you close your eyes and think about war, the first images that pop into your mind are probably soldiers, battles, and military technology--NOT jeans, kitchens, and hockey! And yet, during the Cold War, it was precisely realms like fashion, sports, and music that, for many people of the time, came to define the conflict between the United States and the USSR. This course will explore soft power, or countries' ability to get what they want through attraction rather than traditional force, in the context of the Cold War.

**HNUH228Y Interrogating Issues of Piracy/Pirates amidst the Shadowy Landscapes of War & Peace (3 Credits)**
Who are pirates and what constitutes piracy in a given era? To what extent do changing notions of piracy reflect major societal transformations at the national, regional and global levels, as well as reveal the contested and often overlapping boundaries of war and peace? How can we use pirates/piracy as a "tool" to engender an historical, economic, political, social, and cultural understanding of global forces and change? Do the legends and myths surrounding infamous pirates represent the realities and relationships of early and new forms of piracy? Could piracy be conceived as a form of counterculture? To what extent do piracy, rivalry, state building, war-making, peace-making all belong on the same continuum? This course examines pirates/piracy as an integral part of major global processes. We will investigate when and why piracy emerged and flourished, and how lawbreakers and lawmakers relate to one another on the murky terrains of power, then explore alternative ways to (re)configure who is a pirate and what constitutes piracy, especially within the dynamics of today's neo-liberal globalization.

**HNUH228Z The Problem of Prejudice: Overcoming Impediments to Global Peace and Justice (3 Credits)**
What is prejudice? How are our prejudices formed? What similarities and differences are there between various forms of prejudice across race, gender, nationality, politics, religion, among others? What is the relationship between prejudice and conflict? What is the role of prejudice in thinking about issues of peace and justice? How can we better understand the role that prejudice and discrimination have in a globalizing world? What can we learn from a scientific basis of knowledge about the causes of prejudice? This course will survey interdisciplinary scholarly research and popular cultural conversations about the root causes of prejudice and discrimination. You are expected to examine empirical evidence toward formulating your own views about the impact that all forms of prejudice impose on the human condition and the role it has played in your own life. Based on research evidence, the course encourages the search for solutions to the blight of prejudice.
**Credit Only Granted for:** BSOS240, HNUH228Z, or HONR279L.
**Formerly:** HNUH228Z and HONR279L.

**HNUH229P Climate in Crisis: Strategy and Advocacy (3 Credits)**
This theory and practice track examines theoretical frameworks for understanding climate change and concrete cases that shed light on the complexity of managing it. In this, the practical component of the Climate in Crisis track, we explore several domestic energy and climate policy case studies, examining the competing roles played by various interest groups that influence legislative and regulatory outcomes, with a focus on differing organizational advocacy strategies. Once we have mastered organizational advocacy strategies, students bring those tools to bear on the most recent US Federal policy mandates and legislation. In 229T, students will complement this work with a deep dive into the nature of public goods and climate change policy, among other crucial considerations.

**HNUH229T Climate in Crisis: Socio-Environmental Sustainability (3 Credits)**
What does it mean to achieve sustainability and how does use of a socio-environmental lens help move the world in that direction? In this, the theory component of the Climate in Crisis track, students will develop an understanding of socio-environmental systems, what they have in common with other complex adaptive systems and the approaches used to study them. With a focus on why a socio-environmental systems approach can help illuminate the environmental, socio-cultural, economic, and intersectional dimensions of sustainability, we will explore what different disciplines bring to this complex topic and use qualitative and quantitative approaches to grapple with problems of sustainability. How do we work with stakeholders to identify the vulnerable, the equitable paths forward, and the trade-offs? Who are the winners and losers of policy decisions? In HNUH229P, students will complement the work of this course with hands-on engagement at the level of Federal policy and legislation.

**HNUH238B Systemic Racism in Public Opinion and Policy Attitudes (3 Credits)**
If we believe that racism is bad, why do we still support racist policies? No matter how hard we work to end it, the challenge of racism seems here to stay. Though attitudes toward racial segregation in schools have changed, schools are more racially isolated than ever. There is a disconnect in American public life between support for the idea of equality and resistance to policies aimed at addressing racism, and a deep divide over how to eliminate inequality. This course focuses on public opinion and how these attitudes inform public policy. Can we address systemic inequality through public engagement and by changing the national narrative with the support of evidence? Does change come from shifting views or shifting policies? Students will explore these issues through a case study on racial equity in the Honors College. By developing skills in evidence-based op-ed writing and survey-based experiments, students will add their voices to these pressing public debates of our time.

**HNUH238U Unequal Opportunity? Race and the Future of American Education (3 Credits)**
America's schools are dynamic microcosms of society at large. They simultaneously reflect, reproduce, and shape what happens outside of the classroom, including the many ways that racism affects us all. The educational mechanisms that operate for the benefit of some and to the detriment of others are often hard to see, often because they are hidden in plain sight. For example, national tests are standardized. When racialized differences in test scores appear, they are called "achievement gaps" and the disparity is attributed to essential differences or cultural deficiency rather than inequitable access and opportunity. In this course students will learn methods to critically examine such commonplace notions as the achievement gap and to document their effects on society. They will also develop strategies for self-reflection that enable them to confront inequity in their own educational experience and work to create change.

**HNUH238V Still Separate and Unequal? The Enduring Role of Segregation in American Life (3 Credits)**
Racial segregation remains an enduring feature of American life today though many believe segregation is a relic of the past. Using an interdisciplinary approach that incorporates history, sociology, political science, and public policy, this course highlights the complex ways in which legacies of segregation continue to shape life in the US. We will identify how federal, state, and local governments endorsed systemic racism through policies that defined the racial geography and resources of racial groups in the US. Students will engage with policy experts to consider the promise and limits of policies that promote integration within communities and the connection between race, spatial location, and current political divisions.

**HNUH238W Monsters and Racism: Black Horror and Speculative Fiction (3 Credits)**
The previous decade has been considered a renaissance for Black Horror. From Get Out to Lovecraft Country, the genre has enjoyed unprecedented mainstream media buzz and accolades. This course looks at contemporary Black horror and speculative fiction as cultural texts which put into question our notions of human(e) and inhuman(e) through critiques of white supremacy and accompanying oppressions. Students will learn a host of critical skills through close reading and analysis of literature and film by Black creators such as Jordan Peele, Misha Green, Toni Morrison, Jewelle Gomez, and Octavia Butler. With the ability to interpret cultural texts using literary criticism, film analysis, history, cultural studies, ethnic studies, feminist theory, and the social sciences, students will connect these texts to continuing historical and contemporary issues of racial and cultural oppression such as medical discrimination, policing and criminalization, misogynoir, and racialized capitalism.
**Cross-listed with:** AAAS271, ENGL289J.
**Credit Only Granted for:** AAAS271, ENGL289J, HONR299Y, HNUH238W, WGSS271 or WGSS298W.
**Formerly:** HNUH238W.

**HNUH238X Learning as Deliberation: The Struggle for the Future of Higher Education (3 Credits)**
It has been nearly a millennium since European university students first gathered in halls to listen to lectures. With some technological additions (lights, whiteboards, Powerpoints), introductory courses at U.S. universities look pretty much the same. For the past few decades, financial consultants, educators, and students have questioned whether this model of learning makes sense in the 21st century. In 2020, a pandemic gave this question a new urgency. Nothing about the old way of doing things seems inevitable anymore; everything seems up for debate. Should we get rid of lecture halls? What about dorms? The SATs? Tuition? This seminar invites students to deliberate about the current policies and politics of public higher education in the United States. We will study how ancient ideas about merit, democracy, and equity (or lack thereof) have shaped decisions about what higher education should offer and to whom. We will look to alternative traditions of learning with roots in indigenous worldviews, abolitionist organizing, and feminist collaboration, and study how these traditions have challenged and complemented public higher education. As we explore theories and practices of the past and present, students will learn to articulate and advocate for their own priorities as 21st-century citizens of UMD.

**HNUH238Z Learning as Deliberation: The Struggle for the Future of Public Education (3 Credits)**
This seminar invites students to deliberate about the historical roots of the policies and politics of public education in the United States. We will study how ideas about merit, democracy, and equity (or lack thereof) have shaped decisions about what public education should offer and to whom. We will look to alternative traditions of learning and study how these traditions have challenged and complemented public education. As we explore theories and practices of the past and present, students will learn to articulate and advocate for their own priorities in public higher education as 21st-century citizens of UMD. This course uses project based pedagogy. Students will create a proposal for teaching a facet of American History (Pedagogical Design Project) and engage in peer critique (presentation QA) to hone their critical skills.

**HNUH239P Geopolitics of Finance: A Simulation of the Roller Coasters of Capitalism (3 Credits)**
Explores the intersection of money, markets, politics, and power; and the periodic financial crises that leave a lasting, sometimes devastating impact on the global landscape. Students will examine the detritus of 200 years of crises in the United States, from 19th-century booms and busts, to early 20th-century crashes. They will take the roller coaster ride of the 2008 financial crisis, reliving events that left the world reshaped. Students will be primed to examine the ripple effects of financial crises and the role they have played in changing the global socio-economic landscape over the last two centuries. This course is self-contained but paired with HNUH239T in the Geopolitics of Finance track, which explores how globalization has brought about fundamental changes to our daily lives by making the world more interdependent.
**Credit Only Granted for:** HONR299F or HNUH239P.
**Formerly:** HONR299F.

**HNUH239T Geopolitics of Finance: Innovation & Cross-Cultural Globalization (3 Credits)**
Introduces students to the creative possibilities of the global economy: cross-cultural innovation, collaborative design-driven solutions, and enduring innovation with global purchase. Covers innovations in global business that are transforming the future through an embrace of diverse cultural perspectives. Working with interactive idealized design, out-of-the-box-thinking, and strategic exploration tools, students will explore and experience relevant design to new and cross-cultural value creation. Through rapid prototyping, immersive reflections, and innovative design activities, students will experience how to translate insight into action, and action into tangible results. The evolutionary application of frameworks in this course culminates in a capstone project. This course is self-contained but paired with HNUH239P in the Geopolitics of Finance track, which explores how globalization has brought about fundamental changes to our daily lives by making the world more interdependent.

**HNUH248A Identity, Places, & Spaces (3 Credits)**
Students in this interdisciplinary course will explore multi-layered issues related to privilege and oppression through their own life experiences via exposure to theory, research, film, memoirs, and current events. Students will evaluate and critique common assumptions about the meaning and experiences of privilege and oppression using Intersectionality theory as a guiding framework. The human experience related to various social identities (i.e., race, gender and gender identity, sexual orientation, social class, religion, age, and ability) will be addressed.

**HNUH248B Setting the Table: The Challenges and Opportunities for Sustainable Agriculture (3 Credits)**
What will the farm of the future look like? Our current food system is plagued with paradoxes. An estimated 41.2 million Americans are classified as food insecure, but we produce 4,000 calories per person per day. Between 2008 and 2012, 1.6 million acres of long-term grasslands were converted to crop production, yet more than 350,000 acres of farmland were lost to development annually. This course will investigate what determines the food we eat and how we can make changes today that will improve both food access and the environment for future generations. Students will learn agribusiness, as well as alternative food movements and regenerative agriculture. They will meet experts from the USDA and Maryland producers. By growing their own vegetables, tracking food consumption, and exploring family history linked to farming, students will leave the course as conscious consumers empowered to navigate food system reform.

**HNUH248U Building Community: How to Make Friends (3 Credits)**
In 2017, U.S. Surgeon General Vivek Murthy deemed loneliness an "epidemic." While the rise of social media is meant to foster connection, over 23% of adults report being lonely and social networks have been shrinking for decades. Despite increasing rates of loneliness, it is still possible to overcome these trends and find connection. We tend to assume that we should know how to connect with others intuitively, but, as rising rates of loneliness indicate, this is not the case: connection is something we must learn and practice. In this applied course, students will learn the science of connection and engage in practical activities designed to help them make and keep friends. They will leave the course better able to foster meaningful connections. This course is self-contained but paired with HNUH269T in the Building Community track, where you will learn the social value of showing up, for the world and for yourself.
**Credit Only Granted for:** HNUH248U or HNUH269P.
**Formerly:** HNUH248U.

**HNUH248V How Can We Study Environmental Problems? (3 Credits)**
How do we study environmental problems? The course provides an overview of the ways social scientists collect information about environmental issues and environmental change, most of which are driven by society and the social world. The course focuses on learning how to collect data that are reliable and applicable to research questions. Through the lens of specific case studies of environmental efforts currently underway, students will learn how to construct a testable hypothesis, design a small-scale research project, and write up the findings of this work to understand environmental issues. They will develop a critical eye to the structure of social science research: identifying the object of inquiry, noting what is being tested; how it is operationalized; and evaluating the quality of the research conducted. The course requires no background or prerequisites.
**Credit Only Granted for:** HONR249D or HNUH248V.
**Formerly:** HONR249D.

**HNUH248X My Hometown, Our Wilderness: Ecology of Identity (3 Credits)**
What has been the setting of your life? Suburbs? Cities? A farm? We may be used to thinking of environments as equal access across society, since everyone is free to visit our National Parks or spend a day at the beach. But there are striking ways in which identity affects our habitat. Race, class, gender, sexual preference, and other markers have strong influences on where we spend our time, what we eat, and how we work and relax. Suburbs, cities, wilds, and farms are not just physical places, they exhibit histories of social inclusion and exclusion. For example, the money and free time of affluent Americans serves as a portal to leisure spaces that would be inaccessible to working-class Americans who lack the ability to take time off, drive or fly long distances, and pay for it all. We'll profile identity ecology through the poetry of African American urban naturalists, essays of wilderness-loving men like Edward Abbey, the comedy of white environmental outrage, and the racialized class tensions in resorts like Aspen, CO. This survey will support your in-depth personal exploration of identity ecology in a collaborative video media project.

**HNUH248Y How Do You "Man Up?": Men, Masculinity, and Mental Health (3 Credits)**
In August 2018, the American Psychological Association released guidelines regarding the best practices for researchers and mental health professionals when working with boys and men. Many reacted with the question, "are we treating masculinity as a mental health issue?" This course aims to answer that question by taking a historical perspective on how American society has viewed masculinity from the beginning of psychology as a field of study until present day. An intersectional approach will be taken to better understand how race, ethnicity, sexual orientation, gender identity, and socioeconomic status impact men and masculinity. We will address the questions: How does one prove their manhood? How much of masculinity is biological versus socialized? What experiences are unique to men? And how do psychologists and mental health professionals understand and address mental health concerns among men?

**HNUH249P National Security: US Foreign Policy (3 Credits)**
Following the terrorist attacks of September 11, 2001, the U.S. launched a major effort to dismantle the Taliban and create a sustainable democracy in Afghanistan. In 2021, the Taliban took control of the country. Was the U.S. effort doomed to fail? To answer this question, UH students will partner with peers at the American University of Afghanistan through a virtual global classroom to examine the lessons learned from the U.S. and international presence in Afghanistan over the past 20 years. Through reading assignments and virtual meetings with former senior U.S. and Afghan officials, students will examine the reasons behind the downfall of the country and analyze whether the outcome could have been changed. Students are not expected to have any prior knowledge about the conflict in Afghanistan. This course is self-contained but paired with HNUH249T in the National Security track, which explores debates around efforts to protect the nation from terrorism while preserving our values.
**Credit Only Granted for:** HNUH249P or HONR269T.
**Formerly:** HONR269T.

**HNUH258B The Ecology of Childhood Poverty (3 Credits)**
How does poverty shape the relationship between humans and their environment? It may seem obvious that being poor in childhood has enduring effects on development. What is less obvious is how experiencing poverty in childhood shapes relationships between children and their surroundings, including family interactions, peer relationships, adult dynamics, and the health of the community. Less clear still is the extent to which positive interactions with caretakers and social supports can protect children from potential harm as they grow up. This course focuses on the complexity of poverty as a social force and community concern. Students will investigate the nature of poverty through an interdisciplinary lens that includes social theory, developmental psychology, and empirical studies. After analyzing various approaches to the study of child poverty, students will be in a position to use research on parenting and poverty to evaluate public policy and social programs in their own backyard.

**HNUH258U The Basis of Behavior: Evolution and the Origin of Actions (3 Credits)**
Why do some monkeys spend time grooming each other in large groups, while others lose their minds with rage if another monkey comes too close? Complex organisms exhibit behaviors that both fascinate and confound, and the way an animal behaves dictates how it interacts with its environment, with profound consequences. Individual behaviors can have dramatic effects on individual fitness, an individual's groupmates, and even the evolution of species. This leads to a fundamental question in behavioral evolution: why do animals do the things they do? The answer lies in the interaction between individual experiences and eons of natural selection. In this seminar, students investigate what organisms were, what they have become, and why. With a focus on the transitions in behavior that caused single cells to evolve over time into complex societies, students will apply evolutionary principles to individual development and explore how and why individuals choose certain behaviors over others.

**HNUH258X Carnal Knowledge: Health, Data, and Power from Enlightenment to WebMD (3 Credits)**
"Carnal knowledge" may sound provocative but, in a literal sense, it describes information derived from and about the human body. Consider a ship captain observing the tattoos of sailors to understand their origins, a surgeon examining a cadaver for signs of saintliness, or a natural philosopher ingesting an herb to determine its toxicity. These are instances of carnal knowledge. Historically, such intimate acts turned the body into a site of data collection and a powerful source of information. Both by choice and by force, the instrumentalization of the human body was used to solve scientific problems as well as to justify hierarchies of race and sex. Through a deep engagement with this material, students will connect topics such as the transatlantic slave trade to cell lines as they uncover the embodied relationship between information and power that still shapes our world today.

**HNUH258Y The Power of the Writing Voice (3 Credits)**
Words have power to ignite political storms, protest movements, and revolutions. Throughout history, writers have used their voices to create stories that have transformed the world. This course will examine powerful voices in history that have inspired social, political, economic, environmental and cultural change. Students will critically examine the power of these voices through the written word, lectures, and various other media. By critically listening to revolutionary speeches and "Soul" music, and by critically reading literature and essays, students will sharpen their own writing voices. As students explore the complex, dynamic relationships between the written word and cultural change, they will gain insight into the nature of power and influence.

**HNUH259P Drawn to D.C.: Mapping the City (3 Credits)**
Spaces, materials, objects, structures--the building-blocks of cities--index the values of the societies that produce them. By their very nature cities are memory devices. Yet, in an increasingly transient and virtual world, with access to a seemingly infinite amount of memory, what is the status of the spaces we inhabit? This course will explore the relationship among memory, the body and the built environment. Beginning with the role cities play in our individual lives and the construction of personal memories, we will take account of what we forget by remembering and what experiences are missing. Through lectures, seminars and discussions, students will produce short experimental books and pamphlets remapping Washington D.C. and the many invisible - personal - cities it contains. No previous art or design experience required. This course is self-contained but paired with HNUH259T in the Drawn to D.C. track, which explores the created spaces we inhabit, and how they inhabit us.
**Restriction:** Must have matriculated in University Honors starting in Fall 2020 or later.

**HNUH268A Arbitrating our Bodily Rights: What it Means to Consent (3 Credits)**
Both American law and conventional morality support the view that human beings have bodily rights - ones we can waive by giving another person our consent to do what would otherwise be a rights violation. Yet, debate about the sovereignty of an individual's body and the potential rights of others--including the state--over our bodies lies at the core of some of the most contentious issues facing us as a society. This class will investigate the thorny debates that pertain to consent in sexual relations, medicine and research, and bodily markets. What types threats, offers, or cognitive incapacities undermine true consent? How do we evaluate the moral or legal significance of bodily rights when they come into tension with the government's interest? After evaluating arguments, exploring distinctions, and using philosophical tools to arrive at reasoned conclusions about consent, students will learn to apply these conceptual tools to cases from fiction and current events.

**HNUH268B Global Heritage (3 Credits)**
What traction does the past have in society today? This course explores globally how the past gains traction in society today and becomes remade in the present. That inquiry will be guided by the idea of heritage, as it mobilizes the past within a broad spectrum of social, political, economic, and environmental issues. We will examine western relationships to the past as intimately tied to property and the drive to plunder, collect, and catalogue. Increasingly, conceptions of heritage include landscapes, as well as intangibles such as music, dance, and folklore. This broad definition honors the diversity of present-day relations to the past, even as it strains heritage management models that are organized around definitions and regulations, and bear the weight of historical injustice. Close examination of heritage at work within global crisis and struggle prompts questions on who owns the past, and who owns up to it. What do we owe the past, and will we be good ancestors to the future?

**HNUH268H Contested Bodies: Religion, Race, and Narrative (3 Credits)**
What does your body express about who you are and what you believe? How do you perceive your body, and what role do public expectations, social values, and cultural norms play in that perception? With Muslim women as our primary case study, this course asks students to engage with the lived experience of bodies perceived as passive, vulnerable, or even violent in the Western context, and to evaluate their construction of agency. Through engagement with politics, religion, race, and transnational feminism, we will explore how bodies are expressed, contested, subjugated, and violated within various configurations of power and governance. We will encounter personal narratives--and create our own--to understand how bodies also resist the persistent forces that seek to shape their image.

**HNUH268W Where the Waters Blend: Contemporary Indigenous Perspectives on History, Traditions, and Modern Issues (3 Credits)**
In this unique cultural and personal learning experience, students will explore the history, traditions, and contemporary issues faced by Maryland's Indigenous people. The experiential work of the course asks students to consider how the past matters, particularly when it is embodied in the land they live on, and their present obligations to it. On-campus and place-based learning, focused on the precolonial and colonial histories of Maryland's Indigenous people, and their contemporary issues create opportunities for students to reflect upon and interrogate their understanding of Maryland's past, present, and future. Students will emerge from this course with a greater understanding of the Maryland's Indigenous people and an increased capacity to challenge colonial and postcolonial paradigms that marginalize the Indigenous people in our region, nation, and across the globe.

**HNUH268X Sex for Sale: Prostitution in Transnational Perspective (3 Credits)**
Can sex be sold? Is prostitution work or violence, and who gets to decide if it is legal or illegal? The sex industry has provoked considerable debate in academia, policy circles, and aid organizations globally. This interdisciplinary seminar will engage with these debates through an exploration of histories of prostitution across time and space, and in a variety of theoretical and material contexts. Our main focus will be on the nineteenth- and twentieth-century U.S., Europe, and the Middle East, but we will also explore cases from Asia, Latin America, and Africa. We will use this transnational lens to interrogate social and cultural assumptions about bodies, agency, and social institutions. We will also consider a variety of social movements from anti-prostitution to SlutWalks, and regulatory policies from criminalization to legalization, and how they intersect with race. This course invites students to move beyond the surface and form their own approach to these body politics.

**HNUH268Y The Politics of Disability: Life Narratives & Identity (3 Credits)**
The politics of disability are fraught and contentious. This course takes up the experience of disability by asking how and why differently-abled bodies are excluded, marginalized, or threatened. Students will examine these questions through the psychosocial and cultural history of disability, as well as through life narratives and real-world exploration. Beginning with the history of disability, students will gain an understanding of how current disability identity and culture has develop in the US. Students will experience and also produce personal life narratives related to bodily politics and gain insights that help them navigate the politics and participate in the change-making advocacy of disability.
**Credit Only Granted for:** HONR218V or HNUH268Y.
**Formerly:** HONR218V.

**HNUH268Z Body Boundaries: The science behind asexuality, coloniality, and immortality (3 Credits)**
Animal bodies have clear boundaries across space and time - or do they? Although the most familiar animals have clearly delimited bodies and persist only for a certain amount of time, evolution has produced many remarkable animals that defy simple definitions of bodies. Some animals shatter their bodies into pieces to reproduce, generating a collection of identical clones. Others remain physically attached to their siblings or offspring - coordinating activities across attached individuals and functioning as a meta-organism. Still others continually renew their bodies and attain immortality. In this seminar, we will explore the naturally-occurring phenomena that challenge our concept of body. As we analyze the complex ways that bodies relate to one another in the world and broaden the definition of body, students will engage in authentic scientific practices with transferable skills.
**Credit Only Granted for:** HONR258A or HNUH268Z.
**Formerly:** HONR258A.

**HNUH269P Building Community: How to Make Friends (3 Credits)**
In 2017, U.S. Surgeon General Vivek Murthy deemed loneliness an "epidemic." While the rise of social media is meant to foster connection, over 23% of adults report being lonely and social networks have been shrinking for decades. Despite increasing rates of loneliness, it is still possible to overcome these trends and find connection. We tend to assume that we should know how to connect with others intuitively, but, as rising rates of loneliness indicate, this is not the case: connection is something we must learn and practice. In this applied course, students will learn the science of connection and engage in practical activities designed to help them make and keep friends. They will leave the course better able to foster meaningful connections. This course is self-contained but paired with HNUH269T in the Building Community track, where you will learn the social value of showing up, for the world and for yourself.
**Credit Only Granted for:** HNUH248U or HNUH269P.
**Formerly:** HNUH248U.

**HNUH278A The Research Behind Headlines on Words, Thought, and Behavior (3 Credits)**
How does the human mind use language? Type "Language Science News" into your Google search bar. Among the more than 3 billion hits, headlines like "What is love? It depends what language you speak" and "Science's English dominance hinders diversity" invite you to think about the impact of words on thought and behavior. These are stories about how humans acquire and use language, but they ultimately address big questions about how we experience knowledge itself. In a world of unprecedented access to science journalism, did you ever read a headline about human behavior and wonder: How do we know? This class takes up the elegant ways cognitive scientists design experiments to answer crucial questions about language and thought, brain and behavior, that have no intuitive answers. Students will dive deep into the media coverage of their favorite claims about what we know, debate the psychological science behind these claims, and develop transferable critical-thinking skills in the process.
**Cross-listed with:** HESP214.
**Credit Only Granted for:** HNUH278A or HESP214.

**HNUH278B Democratic Habits (3 Credits)**
How do ordinary citizens power democracy? At the age of 18, every American citizen is endowed with the right to vote, but what if democracy demands more than voting? With democratic processes seemingly in peril all around us, what can and should ordinary citizens do to safeguard democracy? Looking beyond the basic right to vote, this class will instead explore the complex ecosystem of citizenship practices necessary for collective self-governance. Turning to both philosophy and history, the course material addresses the power and peril of such civic habits as mutual aid, economic participation, tolerance, attention, organizing, protest, and more. We consider what resources these habits require, what virtues they inspire, and what happens when they conflict with each other. Students in this course will acquire the tools to develop and act on their own answer to the pressing question of what it will take to save democracy.

**HNUH278U Indigenous Knowledge, Supernatural Remedy, and Collective Action: Lessons from Agrarian Societies (3 Credits)**
How were human communities sustained before the rise of capitalism, individualism, and secularism? Where can we look to imagine a world in which modern science, polity, and ethics are not the defining system of civil social? Through an exploration of stories from late medieval Europe, China, Southeast Asia, and other regional communities, with a particular focus on the East, this course aims at de-orientalizing the narratives of the Western world by recovering the collective practices of the global past and present. Interrogating the idea that human history has been a linear process of industrialization and secularization, this course encourages students to reflect on the limits and problems of modernization, and learn from cultures whose practices were displaced or silenced by colonial knowledge production. Students will be empowered to consider, and even envision, alternative versions of modernity and the future of our world.

**HNUH278V Climate Change, Infectious Disease, and Civil Society (3 Credits)**
Viruses that are lethal to human life have been on earth for centuries. Why are they surging now? And how can we respond to the recent breakneck spread of Coronavirus? This class begins its journey with Homo sapiens, our ancestor that dispersed out of Africa and carried infectious diseases across the planet. Human expansion into new ecosystems also provided opportunities for us to acquire new pathogens. While all of human history is marked by diseases caused by human migration, the Industrial Revolution greatly accelerated human mobility while planting the seeds of the human impact on climate change. Today, the increasingly rapid movement of people and goods, combined with a warming planet and the large-scale disruption of major ecosystems has witnessed an unprecedented spread of infectious diseases. Students will explore how these trends impact our lives and collectively challenge themselves to do what must be done to save our planet and ourselves.

**HNUH278X A Way with Words: Order and Knowledge in Enlightenment Europe (3 Credits)**
"Without language, things cannot well be expressed or published to the World," wrote Edward Phillips in The New World of English Words (1658). In this course, we will interrogate the power of words to communicate and classify, to impose meaning and order in the historical moment that brought about many of our modern institutions and ways of thinking: the European Enlightenment. From the binomial taxonomies with which Linnaeus ordered "chaos and confusion" to the racist taxonomies deployed to reinforce inequities, we will survey how language facilitated the consolidation of European power at home and abroad. We will further develop the visual literacy to decode how images convey knowledge. Looking back to the period that gave shape to many modern languages, institutions, and divisions of knowledge, we will be poised to face today's crises.

**HNUH278Y Science in an Age of Truthiness (3 Credits)**
Scientific research has the power to advance understanding, create new technologies, and improve our lives. And yet scientific language - which is essential for these achievements - can be appear opaque and untrustworthy to non-scientists. Indeed, the fact that scientific understanding develops over time can even make the knowledge seem capricious. As a result, science is both unfairly maligned and unrealistically praised, sometimes even in the same breath. Through both the philosophy of science and historical scientific literature, we will survey how scientists have done and expressed science. Students will be empowered to critically evaluate current conceptions of science as these are revealed in the debates around climate change and COVID-19.
**Credit Only Granted for:** HONR299I or HNUH278Y.
**Formerly:** HONR299I.

**HNUH278Z War of Words: Disinformation and Manipulation (3 Credits)**
Examines a global phenomenon that has taken on massive proportions in the world: the spread of disinformation. We will explore types of false information, from misinformation to propaganda, that are designed to manipulate public opinion. We will survey the historical origins of these tactics, from conspiracy theory to racist propaganda, and how they have been used by governments, interest groups and businesses. Through a hands-on exploration of deep fakes and the alteration of text and image, this course will give students the practical skills they need to verify information and fact check. Students will leave the course conversant in the basics of digital safety for content producers.

**HNUH288A Welcome to the Party: Race, Nightlife, and Identity in America (3 Credits)**
How does play shape our humanity and national identity? We often define people by the work that they do, whereas we tend to think of leisure and after work playfulness as a release from that identity. This course takes up a particular form of play--nightlife--to reckon with how it shapes what it means to be human and how it impacts nationhood, particularly around matters of race and oppression. Spanning from slavery to the present, this course examines how nightlife has been used to deny black people's humanity and been a vital site of playfulness, manifest as joy, resistance, self-making, and aesthetic innovation. Using performance studies to make sense of the world, our explorations will range from cakewalk dance competitions on plantations to queer night clubs. Once students better understand how nightlife is vital to the making and the unmaking of black people's humanity, they will grapple with play as a meaning-maker in their own lives and in our democracy.

**HNUH288B Race, Reproduction and Rights (3 Credits)**
Can humanity thrive without ensuring reproductive freedom? The 2022 US Supreme Court decision that the right to an abortion is unconstitutional has generated impassioned debate about women's rights and access to reproductive health care in the US and globally. This debate opens space to think beyond "pro-choice or pro-life" polarization and create conditions that promote equity, respect for rights, and a healthy society. These conditions would need to address injustices such as the racism, gender inequalities, marginalization, and colonization that produce disparities in reproductive health care and jeopardize the well-being of individuals, families, communities, and countries. Who controls the bodies of marginalized women and men? What is the meaning of reproductive rights for people who have little power? This course challenges students to bring together multiple disciplines, become critical data consumers, and develop innovative ways to use this knowledge to influence policy.

**HNUH288U The Body Knows: Creating Healthy Intimacy on College Campuses (3 Credits)**
How do we figure out what we physically desire? How do we know where our boundaries are and how do we communicate that to others? What would it look like to create a campus community where young people are confident about their sexuality and their ability to communicate the nuances of their needs to potential partners? This course is designed as a creative workshop to help students put their own embodied knowledge in conversation with theories and practices of healthy intimacy. Core texts explore the history of sexual violence as a tool of colonization, the relationship between feminism and sex-positivity in popular culture, and the consent theories that have become central to college campus responses to sexual violence. With the help of performance-based techniques, students will have the opportunity to research issues specific to UMD, design curricula for their peers, and advocate for an end to sexual violence on campus.

**HNUH288X The Human Interface, from Anatomy to Avatar (3 Credits)**
Anthropomorphized pets post on Instagram, FitBits transmit biodata, bots influence elections... In the digital world designed by and for human beings, all sorts of actors imitate people, while people are objectified through surveillance and data mining. Despite a frequent distinction between the internet and 'IRL,' physical bodies are wrapped up in every aspect of existence online: from the factory workers who build our technology to the postures and gestures those devices require us to adopt. Exploring this range of bodily phenomena, this course considers what constitutes a "human body" online and how digitality and connectivity inform our understanding of personhood. From RPGs and dance challenges to AI and visceral responses to internet content, students will analyze the complex relationships between the technological and the embodied, the social and the political, the past and the future.

**HNUH288Y What You Are and Why it Matters (3 Credits)**
Who you are is interesting and important, but not the subject of this course. What you are is closer to our topic but not yet specific enough; after all, you are many things: a student, a citizen, a driver, a Terp, and so on. This course asks deeper and more elusive questions: what kind of being are you? What is your fundamental nature--the nature you share with others and that simultaneously grounds your individuality? We will work to answer these questions and investigate the limits of our nature, from the possibilities of time travel and teletransportation to the realities of dissociative identity disorder and conjoined twins. The insights we glean will help us grapple with the nature of human existence--from what happens when you die, to our responsibilities toward others, to nothing less than the meaning of life.

**HNUH288Z Non-Human Animals in Human Society (3 Credits)**
As humans, we share our lives with other animals in diverse and conflicting ways. Non-human animals can be consumed as food, used for scientific research, and treasured as companions. They are commercialized, worshipped, and stereotyped. Our complex relationships with other animals emerge from and fuel debates about what makes "us" different from "them." In this course, we will ask (and attempt to answer) questions such as: What roles do we open to (or force on) non-human animals in American culture and why? Who makes these decisions and what is their effect on animal life? We will explore the evolution of modern human-animal relationships to contextualize major social and scientific debates that have arisen in the last century, including what it means to be human in this context, and why they matter.

**HNUH300 Vantage Point Seminar (2 Credits)**
Goal-setting and project-design seminar required of all UH students and taken in the second semester of the sophomore year or the first semester of the junior year.

**HNUH318T Political Engagement and Advocacy (3 Credits)**
An examination of questions and issues in the practice of political engagement and advocacy. Guest lecturers drawn from political, civic engagement, and advocacy arenas will visit class and participate in discussions.
**Cross-listed with:** FGSM310.
**Restriction:** Must be in the Federal Fellows Program; and permission of instructor.
**Credit Only Granted for:** HNUH318T or FGSM310.

**HNUH328T Public Health Policy (3 Credits)**
An exploration of the major questions and issues facing the U.S. health care system as well as the formulation and implementation of health policy.
**Cross-listed with:** FGSM320.
**Restriction:** Must be in the Federal Fellows Program; and permission of instructor.
**Credit Only Granted for:** UNIV348P, HNUH328T or FGSM320.
**Formerly:** UNIV348P.

**HNUH338T Homeland and National Security Policy (3 Credits)**
An examination of the concept of U.S. homeland and national security, threats, and major vulnerabilities in the context of recent history.
**Cross-listed with:** FGSM330.
**Restriction:** Must be in the Federal Fellows Program; and permission of instructor.
**Credit Only Granted for:** UNIV348T, HNUH338T or FGSM330.
**Formerly:** UNIV348T.

**HNUH348T Energy and Environmental Policy (3 Credits)**
An examination of issues of energy and environmental sustainability through an investigation of policy-making in energy, climate change, and sustainable development.
**Cross-listed with:** FGSM340.
**Restriction:** Must be in the Federal Fellows Program; and permission of instructor.
**Credit Only Granted for:** UNIV348E, HNUH348T or FGSM340.
**Formerly:** UNIV348E.

**HNUH358T Critical Regions and International Relations (3 Credits)**
An examination of international relations and foreign policy challenges in critical regions.
**Cross-listed with:** FGSM350.
**Restriction:** Must be in the Global Fellows Program; and permission of instructor.
**Credit Only Granted for:** HNUH358T or FGSM350.

**HNUH368T U.S. Diplomacy and Policymaking (3 Credits)**
An examination of questions and issues in the practice of contemporary diplomacy and policy-making. Guest lecturers drawn from Washington policy-making and foreign service communities will visit class and participate in discussion.
**Cross-listed with:** FGSM360.
**Restriction:** Must be in the Global Fellows Program; and permission of instructor.
**Credit Only Granted for:** HNIUH368T or FGSM360.

**HNUH378T Science Diplomacy: Foreign Policy & Science, Technology, and Innovation (3 Credits)**
An exploration of the critical roles scientific knowledge and technological innovation play in the formation and implementation of foreign policy issues, including energy and climate change, public health, space and innovation, and economic development.
**Cross-listed with:** FGSM370.
**Restriction:** Must be in the Global Fellows Program; and permission of instructor.
**Credit Only Granted for:** UNIV389F, HNUH378T or FGSM370.
**Formerly:** UNIV389F.

**HNUH388T Responses to Global Challenges (3 Credits)**
An examination of global issues and responses primarily from the perspective of the practitioner. The focus will be on social, humanitarian, and human rights issues in different global contexts.
**Cross-listed with:** FGSM380.
**Restriction:** Must be in the Global Fellows Program; and permission of instructor.
**Credit Only Granted for:** UNIV389B, HNUH388T or FGSM380.
**Formerly:** UNIV389B.

**HNUH398P Federal and Global Experiential Learning (3-9 Credits)**
This is the experiential course component of the Federal Fellows Program and Global Fellows Program.
**Cross-listed with:** FGSM398.
**Restriction:** Permission of instructor.
**Repeatable to:** 9 credits if content differs.
**Credit Only Granted for:** FGSM398 or HNUH398P.

**HNUH398T Global Health Challenges and Water Security (3 Credits)**
An examination of questions and issues of global health and water security. Expert practitioners will also visit class and participate in discussions.
**Cross-listed with:** FGSM390.
**Restriction:** Must be in the Global Fellows Program; and permission of instructor.
**Credit Only Granted for:** HNUH398T, HONR378M, or FGSM390.

# HONR - Honors

**HONR100 Honors Colloquium (1 Credit)**
Attendance at various additional activities and events is required. Reading and discussion on the personal and social value of higher education; development of a coherent general education program; exploration of the educational and cultural resources of the campus and metropolitan area; participation in a community service project; and other activities designed to broaden students' conception of what it means to be an educated person.
**Restriction:** Permission of University Honors Program.

**HONR149 Honors Colloquium (3 Credits)**
A colloquium on a variety of topics.
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR168 Honors Seminar (1-3 Credits)**
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR169 Honors Seminar (1-3 Credits)**
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR208 Honors Seminar (1-3 Credits)**
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR209 Honors Seminar (1-3 Credits)**
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR218 Honors Seminar (1-3 Credits)**
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR219 Honors Seminar (1-3 Credits)**
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR228 Honors Seminar (1-3 Credits)**
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR231 London and the British Empire (3 Credits)**
Focuses on the people, places, and policies that shaped the development of the British Empire, the single largest trans-cultural phenomenon in the world since 1500. Students examine how ideology, migration, technology and resistance shaped the expansion and eventual retrenchment of British imperial power in the Atlantic world and the Indian sub-continent. With the nation's capital as our classroom, students explore the complex workings and legacies of the British Empire from the perspective of its nerve center. The curriculum illuminates the experience of empire for subjects both in the colonies and the metropole and will pay particular attention to the maritime origins of empire, the lives of black Britons and the abolition of slavery, and the rise and fall of the British in India.
**Cross-listed with:** HIST231.
**Credit Only Granted for:** HIST219K, HONR249B, HONR231, or HIST231.
**Formerly:** HIST219K.

**HONR248E Cultures of the Contact Zones - Seville, Al-Andalus and the Atlantic World (3 Credits)**
Content is broad enough to deal with issues of multiculturalism in Spain but also specific enough to center on the city of Seville and the Andalusion region.
**Cross-listed with:** SPAN225.
**Credit Only Granted for:** HONR248E or SPAN225.

**HONR259 Honors Seminar (1-3 Credits)**
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR268 Honors Seminar (1-3 Credits)**
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR268G The Science of Birdwatching (3 Credits)**
In this course you will learn the skill of birdwatching (or "birding") and will contribute your observations to a world database of sightings that help establish trends in overall bird populations. Birding (and bird feeding) is one of the most popular pastimes in the United States, with tens of billions of dollars spent annually by enthusiasts. Birds also tell us about the health of our natural environment: by noting where birds are, and where they are absent, scientists can learn about harmful changes to our world ecosystem and how to reverse them. We can help out by becoming responsible citizen scientists. This course will feature regular field trips to observe birds in their natural habitats. No prior birding experience is needed.

**HONR269 Honors Seminar (1-3 Credits)**
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR288 Honors Seminar (1-3 Credits)**
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR298A Impacts of Globalization (3 Credits)**
Introduces students to key global concepts, discusses a range of perspectives on globalization and cultural competence, and offers an applied learning experience.
**Prerequisite:** CPBE100; or by permission.
**Cross-listed with:** CPBE270.
**Restriction:** Students must be matriculated into the College Park Scholars Business, Society & the Economy (CPBE) program; or by permission.
**Credit Only Granted for:** CPBE270 or HONR298A.

**HONR318 Advanced Honors Seminar (3 Credits)**
A series of seminars, often interdisciplinary in character, and sometimes team taught. The subjects will vary from semester to semester.
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR328 Advanced Honors Seminar (3 Credits)**
A series of seminars, often interdisciplinary in character, and sometimes team taught. The subjects will vary from semester to semester.
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR349 Honors Colloquium (1-3 Credits)**
A series of seminars, often interdisciplinary and sometimes team taught. Subjects may vary.
**Restriction:** University or departmental Honors student. Or permission of instructor; and permission of Director of University Honors.
**Repeatable to:** 3 credits if content differs.

**HONR358 Honors Practicum (3 Credits)**
For student section leaders of HONR100 or HONR200.
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.
**Formerly:** HONR379.

**HONR359 Honors Workshop (1-6 Credits)**
Honors workshops are small seminar classes which concentrate on skill development.
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR368 Advanced Honors Seminar (3 Credits)**
A series of seminars, often interdisciplinary in character and sometimes team-taught. The subjects will vary from semester to semester.
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

**HONR368A MGA Legislative Seminar (3 Credits)**
Prepares students to intern for the Maryland General Assembly. Introduces standard legislative genres and assigns extended practice in researching legislative issues.
**Prerequisite:** Students who have taken courses with comparable content may contact the department; or ENGL101.
**Cross-listed with:** ENGL381.
**Restriction:** Permission of ARHU-English department.
**Credit Only Granted for:** HONR368A or ENGL381.
**Additional Information:** Application required. Contact english@umd.edu for more information.

**HONR379 Honors Independent Study (1-6 Credits)**
Involves reading or research directed by individual faculty, especially in areas outside of the student's major. Open only to University honors students.
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 6 credits if content differs.

**HONR379W Maryland General Assembly Writing Internship (6 Credits)**
Experiential learning at the Maryland General Assembly (early January through early April). Interns participate in standard office tasks, research legislative issues, and draft legislative texts such as constituent letters, notes on bills, newsletters, policy memos, and testimony. Specific assignments vary according to the host legislator's needs and the intern's schedule.
**Prerequisite:** ENGL381 or HONR368A.
**Cross-listed with:** ENGL388M.
**Restriction:** Minimum cumulative GPA of 3.0; and must have earned a minimum of 60 credits; and must be admitted to the MGA program.
**Credit Only Granted for:** ENGL388M or HONR379W.

**HONR386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.
**Restriction:** Junior standing or higher.

**HONR388 Honors Thesis or Project (3-6 Credits)**
**Repeatable to:** 6 credits if content differs.
**Formerly:** HONR370.

**HONR389 Guided Honors Teaching (3 Credits)**
For HONR100 and HONR200 section leaders. Guided teaching experience for selected students in the University Honors Program.
**Restriction:** Permission of University Honors Program.
**Repeatable to:** 9 credits if content differs.

# IDEA - Academy for Innovation & Entrepreneurship

**IDEA101 The Carillon Studio: Creative Problem Solving and Designing Your Maryland Experience (1 Credit)**
Students learn creative problem solving and collaborative strategies that will drive academic success and empower students to tackle big questions.
**Restriction:** Must be in the Carillon Communities Program.

**IDEA201 Innovation Tools & Mindsets (1 Credit)**
Challenges assumptions around what is needed to innovate and who innovators are. Through hands-on activities and reflection, you'll be invited to step out of your comfort zone, think and work in new ways, and gain confidence in your creative abilities.
**Credit Only Granted for:** IDEA201 or IDEA258A.
**Formerly:** IDEA258A.

**IDEA210 Innovation + Sustainability: Designing your own Sustainable Future (3 Credits)**
This hands-on, project-based course tackles the intersection of environment, creativity, and business to develop sustainable solutions to pressing environmental problems. Students work in teams and use design thinking and other human-centered methods to address real-world design challenges. Students will integrate entrepreneurial methods to shape their college and career journey towards a more sustainable future and learn how to motivate and empower others to adopt more sustainable behaviors.
**Credit Only Granted for:** CPSP249E or IDEA210.

**IDEA258 Special Topics in Innovation (1-3 Credits)**
Special topics in innovation
**Repeatable to:** 6 credits if content differs.

**IDEA311 Design Your Purpose (1 Credit)**
What do you want to do once you graduate? What about with your life? These are the big questions we begin to tackle in this course. Use design methods and mindsets to explore your personal and professional development goals and explore potential career paths. Using empathy, brainstorming, and prototyping techniques, you'll imagine potential futures for yourself and test them to see if they are a good fit for you.
**Credit Only Granted for:** IDEA311 or IDEA379A.
**Formerly:** IDEA379A.

**IDEA345 Becoming a Design Thinker (1 Credit)**
Learn design thinking tools and mindsets to create change in meaningful ways and cultivate your curiosity in this dynamic, hands-on course. Encounter new approaches to learning from others, synthesizing qualitative data, visualizing your ideas, and navigating ambiguity (among others!) while applying the tools and techniques to real-world applications. No prior experience or knowledge of design thinking is needed.
**Credit Only Granted for:** IDEA247 or IDEA345.
**Formerly:** IDEA247.

**IDEA358 Special Topics in Innovation and Entrepreneurship (1-3 Credits)**
Special topics in innovation and entrepreneurship applying concepts in real-world applications
**Repeatable to:** 4 credits if content differs.

**IDEA369 Peer Innovation Coaching (2 Credits)**
Deepen your role as an Academy for Innovation and Entrepreneurship Peer Innovation Coach (PIC), where you will be coaching and guiding student teams in the classroom as they learn to use innovation methods. There is both an experiential component and a classroom component. The experiential component involves coaching and teaching innovation class sessions throughout campus, and the classroom component involves discussions, reflection assignments and scenario role-playing to help improve your coaching and teaching. While some of the content in the classroom component will be seeded by a set of course readings, much of it will also be seeded by your own experiences in the experiential component.
**Prerequisite:** IDEA247; and permission from the Academy for Innovation and Entrepreneurship.
**Repeatable to:** 6 credits.
**Formerly:** IDEA358A.

**IDEA379 Advanced Topics in Innovation (1-3 Credits)**
Advanced topics in innovation
**Recommended:** IDEA247.
**Restriction:** Permission of the Academy for Innovation and Entrepreneurship.
**Repeatable to:** 6 credits if content differs.

**IDEA398 Special Topics in Coaching (1-3 Credits)**
Special topics in coaching others
**Restriction:** Permission of the Academy for Innovation and Entrepreneurship.
**Repeatable to:** 6 credits.

**IDEA398C Special Topics in Coaching: Carillon Peer Mentors (2 Credits)**
Prepares students to serve as Peer Mentors in the Carillon Studio (IDEA101). Students gain exposure to a variety of design abilities, methods, and mindsets that prepare them to apply human-centered design to their work in and beyond the classroom. Each Peer Mentor is paired with an IDEA101 instructor, and together they teach aspects of design to first-year students in Carillon Communities, leading them through individual and team projects that encourage them to creatively solve problems. Students build upon their prior experiences in Carillon Communities as they develop skills in communication, leadership, mentorship, and design thinking.
**Prerequisite:** IDEA101.
**Restriction:** Permission of the Academy for Innovation and Entrepreneurship.

**IDEA459 The Innovation Studio (3 Credits)**
In this class, we'll use human-centered design practices to develop performance-based and curricular experiments for future implementation at the National Orchestral Institute + Festival (NOI+F) at UMD. Students will have the opportunity to connect the work we do in class to their own interests related to the visual and performing arts. Experience with classical music performance and/or human-centered design practices is optional. The class is highly experiential, collaborative, and reflective. This work is done through a partnership between NOI+F and the Academy for Innovation and Entrepreneurship to create innovation-related experiences at the festival every year.
**Jointly offered with:** IDEA659.
**Restriction:** Permission from the Academy for Innovation & Entrepreneurship required.
**Repeatable to:** 6 credits.

**IDEA498 Independent Study: Experiments in Innovation (1-3 Credits)**
Apply design thinking and/or lean startup concepts to your own real-world project, which may involve a partner organization. This course requires a high degree of self-direction in all aspects of the project including defining specific milestones and deliverables. There will be regular coaching from an Academy for Innovation and Entrepreneurship team member.
**Prerequisite:** Permission from the Academy for Innovation and Entrepreneurship.
**Repeatable to:** 6 credits.

# IMDM - Immersive Media Design

**IMDM101 Introduction to Immersive Media (3 Credits)**
An introduction to the basic practices, concepts and issues in Immersive Media Design. Conducted as a hybrid studio/lecture course, students will work collaboratively in teams to complete both research and practical projects, including surveying current artists and practice in immersive media; completing studio-based interactive projects that fuse computational media into physical objects; and working in teams to ideate and execute large scale, immersive media works.
**Credit Only Granted for:** CMSC101 or IMDM101.
**Formerly:** CMSC101.

**IMDM127 Creative Coding for Digital Media (3 Credits)**
An introduction to the principles of Computer Science supported by exercises in computer programming with an emphasis on creative coding, algorithmic image creation and manipulation, and interactive experiences. Students will make use of both exploratory coding approaches, and problem/solution-driven approaches, to design and implement software with visual and auditory output. The course also includes an introduction to a wide variety of issues relating to computer science and software, including software design and construction, problem-solving, and fundamental questions about the nature, limitations, and ethical use of computers and algorithms. It also explores how creativity tools can be used and as well as providing some insight into how they are implemented. The course is targeted to students with a broad diversity in backgrounds and interests. No prerequisites are assumed beyond high school algebra.
**Restriction:** Must not have completed any courses from CMSC131-499 course range; and must not be concurrently enrolled in CMSC131.
**Credit Only Granted for:** IMDM127 or CMSC125.

**IMDM150 Digital Media Theory and Culture (3 Credits)**
An introduction to the fundamental structures and themes of digital culture in contemporary society. This course will provide you with a theoretical grounding in which to understand the current landscape of digital media culture, design and art. As an introductory course for the Immersive Media Design major, the focus will be on contextualizing immersive digital media such as virtual reality, augmented reality, immersive projection, and electronic art installation through reading, writing and discussion. Students will have opportunities to experience a range of these technologies first hand.
**Restriction:** Must be in the Immersive Media Design program; or permission of IMDM - Immersive Media Design program.
**Credit Only Granted for:** ARTT150 or IMDM150.

**IMDM227 Introduction to Computational Media (3 Credits)**
Comprehensive introduction to programming for visual, auditory and tactile art. Introduction to basic programming constructs, algorithms, data structures, and data transformations for creating and managing multimedia content, and conducting user interaction. Emphasis on programming and software design including the interfaces between hardware and software in multimedia devices, creating graphical user interfaces, and basic graphics and sound rendering.
**Prerequisite:** Minimum grade of C- in IMDM101 and IMDM150; and minimum grade of C- in CMSC131 or (IMDM127 and CMSC122).
**Restriction:** Must be in the Immersive Media Design program or Permission of IMDM - Immersive Media Design program.

**IMDM290 Collaborative Studio I: Image + Time (3 Credits)**
Concept-driven and team-based collaborative studio course in which students work together in groups to create intellectually engaging and technically innovative works of Immersive Media Design. Student teams will combine their skill sets, technical and artistic, to produce creative works that combine image manipulation, generative images, creation, image and animation output technologies, video and audio recording, manipulation and production, and other forms of digital media assets that can be integrated into immersive media pipelines such as virtual reality, augmented reality, and other interactive forms. In working collaboratively, student teams will use team and assest management processes and tools that reflects contemporary practices in the fields of art, design, software, and the creative industries.
**Prerequisite:** Minimum grade of C- in IMDM227 and ARTT255.
**Restriction:** Restricted to Immersive Media Design Students.

**IMDM298 Selected Topics in Immersive Media (1-3 Credits)**
Selected topics in current and emerging areas of immersive media.
**Restriction:** Permission of IMDM - Immersive Media Design program.
**Repeatable to:** 6 credits if content differs.

**IMDM327 Computational Virtual Reality (3 Credits)**
Introduction to mechanisms and programming for virtual reality, augmented reality, and related technologies. Covers elements of a standard VR system, including creating, managing and rendering visual and audio VR content, tracking orientation and positions of head mounted display (HMD) and controller, rendering stereo imagery for VR headsets, and implementing approaches for user interactivity.
**Prerequisite:** Minimum grade of C- in IMDM227 and CMSC132.
**Restriction:** Must be in the Immersive Media Design, Computing program; or Permission of IMDM - Immersive Media Design program.

**IMDM350 Advanced Digital Media Theory (3 Credits)**
Advanced theories and concepts pertinent to the fields of immersive media design, new media art, design, and cultural technology. Also looks at ways in which contemporary societal norms are being shaped by game culture, social and mobile media, AR/VR escapism, network aesthetics, hacktivism, open-source culture, neural networks, artificial intelligence, and machine learning, among others. This course addresses the broad range of ways in which the accelerating pace of technological advances influence how we mediate the world around us and examines the environmental, social, political, and ethical implications of its use.
**Prerequisite:** Minimum grade of C- in IMDM150.
**Restriction:** Must be in the Immersive Media Design, Emerging Creatives program; or Permission of IMDM - Immersive Media Design program.

**IMDM390 Collaborative Studio II: Experiential Computing (3 Credits)**
A concept-driven, team-based collaborative studio course connecting inquiry, knowledge, and practice. Students will work together to create experiential works of immersive media. This course moves beyond the technical applications of software and emphasizes innovative thinking, social engagement, and problem-solving. Student teams will draw upon their unique skills to create works that participants can inhabit in a way that can only be achieved using new and emerging technologies. The process starts with small-scale "sketch" creation and evolves into larger-scale compelling works of immersive media. Teams will need to organize research methods and goals, engage in production, and explore how to communicate, display, and document their work. As projects develop, feedback will be provided through periodic presentations, peer-critique sessions, and instructor reviews.
**Prerequisite:** Minimum grade of C- in IMDM290.
**Restriction:** Must be in the Immersive Media Design program or Permission of IMDM - Immersive Media Design program.

**IMDM398 Special Topics in Immersive Media Design (1-3 Credits)**
Seminar course covering special topics in current and emerging areas of Immersive Media Design.
**Restriction:** Restricted to Immersive Media Design majors with 60 credit hours completed; and permission of Immersive Media Design program.
**Repeatable to:** 6 credits if content differs.

**IMDM399 Independent Study (1-3 Credits)**
A directed study in specific readings or topics selected by a student under faculty supervision.
**Prerequisite:** 6 credits in IMDM courses.
**Restriction:** Permission of IMDM-Immersive Media Design.
**Repeatable to:** 6 credits if content differs.

**IMDM490 Senior Capstone I (3 Credits)**
The first course in a two-semester senior capstone sequence. During IMDM490 students will research, design and prototype a large-scale immersive media design project, in preparation for fully implementing and exhibiting the project in IMDM491 Capstone II. Students will have the opportunity to apply design and technical skills they have acquired in previous courses as well as focus on the organizational and production skills needed for a substantial, longer term project to achieve an artistic or technical goal.
**Prerequisite:** Minimum grade of C- in IMDM290.
**Restriction:** Must be in Immersive Media Design major Computing or Emerging Creatives track; and must have earned a minimum of 86 credits.

**IMDM491 Senior Capstone II (3 Credits)**
The second course in a two-semester senior capstone sequence. During IMDM491 students will continue to design, prototype and realize a large-scale immersive media design project intended for public exhibition. In doing so, students will adapt and improve their project in response to critical feedback from instructors and peers, to find an exhibition venue, and to market the project through public relations, social networking, and other strategies of promotion.
**Prerequisite:** Minimum grade of C- in IMDM490.

**IMDM498 Special Topics in Immersive Media (1-3 Credits)**
Special topics in current and emerging areas of Immersive Media Design.
**Restriction:** Permission of Immersive Media Design program.
**Repeatable to:** 9 credits if content differs.

**IMDM499 Independent Undergraduate Research (1-3 Credits)**
Directed research under the supervision of a faculty member in immersive media. Students and supervising faculty member will agree to a research plan which must be approved by the department. As part of each research plan, students should produce a final paper on their research.
**Restriction:** Must be in one of the following programs (Immersive Media Design: Computing, Immersive Media Design: Emerging Creatives); and Permission of IMDM-Immersive Media Design.
**Repeatable to:** 6 credits.

# IMMR - Immigration Studies

**IMMR200 Introduction to Immigration and Migration Studies (3 Credits)**
Introduces concepts and theoretical interpretations about the causes of international migration; provides an historical overview of the main flows of immigration to the U.S.; analyzes economic, political, social, and cultural aspects that impact the immigrants' settlement process.

**IMMR219 Special Topics in Immigration and Migration Studies (3 Credits)**
Thematic exploration of a topic in immigration or migration studies history at an introductory level withemphasis on understanding how the movement of people is relevant in the contemporary world.
**Repeatable to:** 6 credits if content differs.

**IMMR219C Immigration Policy, Immigrant Lives (3 Credits)**
An examination of the phenomenon of international migration, or immigration. Students develop awareness of how immigration has been framed in the general public and examined by social science disciplines, most prominently anthropology. Examination of case studies of different immigrant groups in distinct geographic contexts will illuminate the varied incorporation experiences of immigrants into U.S. society.
**Cross-listed with:** ANTH264.
**Credit Only Granted for:** ANTH264 or IMMR219C.

**IMMR319 Special Topics in Immigration and Migration Studies (3 Credits)**
Thematic exploration of a topic in immigration or migration studies with emphasis on understanding how the movement of people is relevant in the contemporary world.
**Repeatable to:** 6 credits if content differs.

**IMMR394 Growing Up Asian American: The Asian Immigrant Family and the Second Generation (3 Credits)**
An interdisciplinary course examines the experiences of children of Asian immigrants in the U.S., focusing on intergenerational dynamics in the Asian immigrant family, their intersections with race, gender, class, sexuality, and religion, and how these shape second-generation Asian American life. Topics include identity and personhood, the model minority myth and education, work and leisure, language and communication, filiality and disownment, mental health and suicide.
**Cross-listed with:** AAST394, AMST324.
**Credit Only Granted for:** AAST394, AAST398E, AMST324, AMST328V, IMMR319G or IMMR394.
**Formerly:** AAST398E.

**IMMR399 Internship in Immigration/Migration Studies (1-6 Credits)**
Internship experience with an organization that works with or studies migration or immigrant populations. This experiential learning course provides training that enriches the students' academic field of study and the IMMR transcript notation. Students submit a final written report of how the experience ties into their major field of study.
**Prerequisite:** HIST222, IMMR200, or IMMR400; and permission of the Center for Global Migration Studies required.
**Restriction:** Minimum cumulative GPA of 2.5; and must have earned a minimum of 60 credits.
**Repeatable to:** 6.0 credits if content differs.
**Additional Information:** This course is intended primarily for students seeking the Immigration and Migration Studies transcript notation, but exceptions will be considered for students with educational or career interests that lie in this area. Student internships must be approved by the Executive Director of the Center for Global Migration Studies. Students must secure an appropriate faculty mentor for the internship course. An internship course will be approved only if a faculty supervisor is available.

**IMMR400 Vital Voices: Oral Histories of the Immigrant Experience (3 Credits)**
An exploration of the dynamic subject of U.S. immigrant experience through the scope of individual immigrant life stories in a global context. Course will include an overview of U.S. and global immigration patterns and an introduction to the practice of oral history.
**Recommended:** HIST222; or IMMR200.
**Credit Only Granted for:** HIST428N, IMMR400, THET428I, or THET498V.
**Formerly:** HIST428N.

**IMMR419 Special Topics in Immigration and Migration Studies (3 Credits)**
Thematic exploration of a topic in immigration or migration studies history with emphasis on understanding how the movement of people is relevant in the contemporary world.
**Repeatable to:** 6 credits if content differs.

# INAG - Institute of Applied Agriculture

**INAG100 Introduction to Plant Science (4 Credits)**
A general introduction to plant science designed to provide the students with a working knowledge of the fundamental structures and processes of plants. Content includes plant anatomy, physiology, genetics and environmental relationships.
**Restriction:** Must be a student in the Institute of Applied Agriculture; or permission of AGNR-Institute of Applied Agriculture department.
**Credit Only Granted for:** INAG100, PLSC100, PLSC101, PLSC110 or PLSC112.

**INAG102 Agricultural Entrepreneurship (3 Credits)**
This course introduces fundamental concepts related to launching a profitable agricultural business. Topics include idea generation, opportunity recognition, conducting feasibility studies, assembling the entrepreneurial team, and financing the new venture, among others. Students will learn knowledge and skills relevant to starting a new agricultural business.
**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.
**Additional Information:** Priority in enrollment will be given to students within the Institute of Applied Agriculture. May not count toward any BMGT major or minor requirement.

**INAG103 Agricultural Marketing (3 Credits)**
Principles of market demand are used to develop a consumer oriented market strategy for agricultural businesses. Topics include market structures, target marketing, market segmentation, niche marketing and direct marketing. Market concepts unique to agriculture products are also covered.
**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.
**Additional Information:** Priority in enrollment will be given to students within the Institute of Applied Agriculture. Course cannot be used to fulfill a requirement for a Robert H. Smith School of Business major or minor.

**INAG105 Soils and Fertilizers (3 Credits)**
Soils and Fertilizers is an introductory course for students entering careers related to applied agricultural production. The course is divided into three subject areas: soil properties, soil fertility, and environmental concerns of using soils for agricultural production. Emphasis is placed upon the characteristics of Maryland soils which are similar to the soils in the mid-Atlantic region. The importance of nutrient management and non-point source pollution of the Chesapeake Bay are covered in the course.
**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.

**INAG106 Pesticide Use and Safety (2 Credits)**
An overview of pesticide use and safety. Topics include environmental protection, labeling, personal safety, first aid, formulation and chemistry, equipment, disposal, storage, record-keeping and liability. The course prepares students to take the Maryland State test for a private applicator's license.
**Restriction:** Must be in a major in AGNR-Institute of Applied Agriculture department; or must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.
**Additional Information:** Priority enrollment will be given to students in the IAA program or to students in the College of Agriculture and Natural Resources (AGNR).

**INAG110 Oral Communication (3 Credits)**
A study of how perception, self-concept, and verbal and nonverbal communications affect the communication process as it emerges in the workplace. The course provides skill training in speech writing, public speaking, group communication, interpersonal communication, listening, and responding.
**Credit Only Granted for:** COMM107, COMM200, INAG110, JOUR130, THET285.

**INAG123 People, Planet, and Profit: Digging Into Sustainable Agriculture (3 Credits)**
Investigates the principles and practices of sustainable agriculture and their relationship to the greater food system. Explores the social (people), environmental (planet), and economic (profit) impacts of agriculture - from challenges to opportunities. INAG123 applies the principles of sustainability to various agricultural production practices and systems - at a range of different scales - to see what lessons these varied models can offer. Along the way, we will consider domestic issues such as food safety and distribution, food justice, cultural relevance, biodiversity, farming communities, and effects on local economies.

**INAG131 Introduction to Agricultural Policy and Communication (3 Credits)**
Introduction to Agricultural Policy and Communication equips students with the knowledge and skills needed to engage in real-world communication around timely issues in agriculture. This course covers basics of United States government and the policymaking process, current and historical policy issues in agriculture, advocacy communication strategies and tactics, and careers in policy and advocacy. This course focuses on practical skills application, as well as exposure to government and advocacy work in action, including field trips and guest speakers. Throughout the course, students will learn and practice communication methods both individually and in team-directed agriculture-related projects.
**Restriction:** Must be a student in the Institute of Applied Agriculture; or must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.

**INAG132 Agricultural Leadership and Teamwork (3 Credits)**
Introduces fundamental concepts related to leadership and teamwork in agricultural organizations. Topics include leadership practices and skills; relationships between leadership, authority, power, and ethics; team decision-making and management; and organizational culture and change. Students will develop effective leadership skills necessary for leading agricultural organizations.
**Restriction:** Students at the Institute of Applied Agriculture (IAA); or students at the College of Agriculture and Natural Resources (AGNR); or permission may be granted to other students based on available space.

**INAG201 Agricultural Human Resources Management (3 Credits)**
The course introduces students to the study and application of the basic principles of human relations and personnel management. A variety of approaches to recruiting, training, delegating, motivating, and appraising employees are among the topics discussed.
**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.
**Additional Information:** May not count toward any BMGT major or minor requirement.

**INAG203 Agricultural Finance (3 Credits)**
This course introduces fundamental concepts related to the financial management of an agricultural business. Topics include financial statement analysis, financial planning, the relationship between risk and return, the time value of money, costs associated with borrowed funds, sources of capital, financial markets and intermediaries in agriculture, and personal finance, among others. Students will gain financial knowledge and skills necessary for managing a profitable agricultural business.
**Restriction:** Students at the Institute of Applied Agriculture (IAA); or students at the College of Agriculture and Natural Resources (AGNR); or permission may be granted to other students based on available space.
**Additional Information:** Course cannot be used to fulfill a requirement for a Robert H. Smith School of Business major or minor.

**INAG204 Agricultural Business Management (3 Credits)**
This course integrates various concepts related to managing a profitable agricultural business. Topics include business management and decision making, preparing a business plan, financial analysis and budgeting, risk and investment management, and small business taxes, among others. Students will gain relevant knowledge and skills as they complete the comprehensive business plan for successfully managing an agricultural business.
**Recommended:** INAG102.
**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.
**Additional Information:** Priority in enrollment will be given to students within the Institute of Applied Agriculture. May not count toward any BMGT major or minor requirement.

**INAG205 Analyzing Alternative Enterprises (3 Credits)**
This course identifies and analyzes alternative crops, livestock, and other agricultural business enterprises. Students assess sustainability, geographic adaptability and potential profitability of businesses through lectures, class projects, and presentations from farmers, entrepreneurs, and managers engaged in alternative enterprises. Topics may include value added approaches, organic crop production, and recreational agricultural pursuits.
**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.
**Additional Information:** Priority in enrollment will be given to students within the Institute of Applied Agriculture.

**INAG206 Agricultural Business Law (3 Credits)**
This course introduces various legal concepts and their relationships to agricultural business and transactions. Topics include torts, criminal law, contracts, promissory notes, property, partnerships, business entities, employment, and bankruptcy, among others. Students will gain a general understanding of the legal system that will help them manage and/or operate profitable agricultural businesses.
**Restriction:** Students at the Institute of Applied Agriculture (IAA); or students at the College of Agriculture and Natural Resources (AGNR); or permission may be granted to other students based on available space.
**Additional Information:** Course cannot be used to fulfill a requirement for a Robert H. Smith School of Business major or minor.

**INAG207 Power and Machinery (4 Credits)**
The basic principles of compact equipment management, including selection, maintenance, operation, adjustment and troubleshooting of agricultural machinery and power units. Covers methods of power development, measurement, and transmission, through power trains both mechanical and hydraulic. Each student will complete a systematic disassembly, analysis, diagnosis and reassembly of a small engine.
**Prerequisite:** INAG250 or PLSC204.
**Restriction:** Must be in a major within the AGNR-Institute of Applied Agriculture department; or permission of AGNR-Institute of Applied Agriculture department.
**Additional Information:** Priority will be given to IAA students and permission will be granted to AGNR students and others on a space available basis.

**INAG213 Crop Production Practices (3 Credits)**
Crop Production Practices covers the applied methods of producing various vegetable and agronomic crops in Maryland. This course focuses on commercial scale production where economics impact production decisions. Topics include crop rotation, cropping systems, nutrient management, and integrated pest control strategies. Throughout the course, economically, socially and ecologically sustainable production practices will be addressed.
**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.
**Additional Information:** Priority in enrollment will be given to students within the Institute of Applied Agriculture.

**INAG214 Agronomic Principles of Golf Turf Management (3 Credits)**
An in-depth study of golf course management practices such as turfgrass selection, fertilization, mowing, irrigation, and cultivation practices. Weed control programs will be discussed in detail for the different playing surfaces on the golf course. Field plot work, laboratory work, and field trips will reinforce lecture material.
**Recommended:** INAG107; or PLSC305.
**Restriction:** Must be in a major within the AGNR-Institute of Applied Agriculture department; or must be in one of the following programs (Plant Sciences; Plant Sciences: Horticulture & Crop Production; Plant Sciences: Landscape Management; Plant Sciences: Plant Science; Plant Sciences: Turf & Golf Course Mgmt; Plant Sciences: Urban Forestry) ; or permission of instructor.
**Additional Information:** Enrollment priority is given to students within the Institute of Applied Agriculture (IAA) and the Plant Science and Landscape Architecture Department.

**INAG215 Business Management Principles for Turf Facilities (3 Credits)**
An advanced course in turfgrass management with emphasis on development of maintenance operating budgets for labor, fertilization, pest control, and supplemental cultural practices for golf courses and athletic field facilities. An overview of the current trend in golf course design and construction and in athletic field construction practices will be covered. Students will be responsible for a presentation concerning some phase of turfgrass management relating to golf course or athletic field operations.
**Recommended:** INAG107; or PLSC305.
**Restriction:** Must be in a major within the AGNR-Institute of Applied Agriculture department; or must be in one of the following programs (Plant Sciences; Plant Sciences: Horticulture & Crop Production; Plant Sciences: Landscape Management; Plant Sciences: Plant Science; Plant Sciences: Turf & Golf Course Mgmt) ; or permission of AGNR-Institute of Applied Agriculture department.
**Additional Information:** Enrollment priority is given to students majoring in Turfgrass and Golf Course Management in the Institute of Applied Agriculture and Plant Science and Landscape Architecture.

**INAG224 Greenhouse and Plant Production Management (3 Credits)**
Principles of managing greenhouses--structures, coverings, lighting, irrigation, heating and cooling systems--and their effects on plant production. Plant propagation methods and environments will be analyzed and practiced.
**Restriction:** This course is open to students in AGNR. Priority enrollment will be given to students in the Institute of Applied Agriculture. All other majors will be granted permission based on available space.
**Credit Only Granted for:** INAG 114 or INAG 224.

**INAG226 Diseases of Ornamentals and Turf (3 Credits)**
The course will cover various topics such as plant pathology, disease control practices, and an in depth coverage of the major diseases of ornamentals and turfgrasses in the Mid-Atlantic region. Emphasis will be placed on identification of disease signs and symptoms. Over 50 diseases will be covered during the semester.
**Recommended:** Completion of one of the following is recommended: PLSC 253, PLSC 254, INAG 107, PLSC 305.
**Additional Information:** Priority in enrollment will be given to students within the Institute of Applied Agriculture.

**INAG231 Insects of Ornamentals and Turf (3 Credits)**
A study of the major insect pests and beneficial insects of ornamental plants and turfgrasses in the Mid-Atlantic region. The student will be responsible for insect identification, life history, and control practices of approximately 100 insects. An insect collection consisting of both insect pests and beneficial insects is required.
**Recommended:** PLSC253, PLSC254, or PLSC305; or INAG107.
**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.
**Additional Information:** Priority enrollment will be given to students in the IAA program.

**INAG235 Irrigation and Drainage (3 Credits)**
An overview of U.S. and state water doctrines and plant water use rates. Irrigation systems for residential and athletic field use will be discussed covering such topics as hydraulics, sprinkler spacing, pipe selection and sizing, pumps, controllers, valves, and irrigation trouble shooting. Surface and subsurface drainage for turfgrass sites will also be covered.
**Restriction:** Permission of instructor.
**Credit Only Granted for:** INAG235, PLSC235 or PLSC489I.
**Formerly:** PLSC489I.
**Additional Information:** Priority enrollment will be given to IAA and PLSC majors. By permission for available seats.

**INAG237 GPS & Drone Applications in Surveying (3 Credits)**
The principles of land measurement using Global Positioning System (GPS) devices and Unmanned Aerial Vehicles (UAVs--i.e. drones) to collect data and generate maps. Students will use Pix4D and Trimble TerraFlex software to post-process collected data and learn how we can use this data to make informed land management decisions. Students will also be prepared to successfully earn their Part 107 Commercial Drone Pilots License as part of the course.
**Restriction:** Must be an Institute of Applied Agriculture student; or permission of the Institute of Applied Agriculture.
**Additional Information:** Course is open to Institute of Applied Agriculture students and permission will be granted to other students based on available seats, with priority given to students from majors in the College of Agriculture and Natural Resources.

**INAG242 Golf Course Design and Construction (3 Credits)**
An appreciation and understanding of the game of golf is obtained through lectures on the history, organizations, and rules of the game. Golf course design theories, great architects and their courses, and construction specifications are discussed. Students will complete two golf course design projects.

**INAG244 Herbaceous Plants (3 Credits)**
Herbaceous plants are integral components of residential and commercial landscapes. Students will become familiar with 250 annual and perennial plants. The emphasis will be on plant management requirements and seasonal variation in the landscape.
**Restriction:** Must be in a major within the AGNR-Institute of Applied Agriculture department; or must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department.
**Credit Only Granted for:** INAG244 or PLSC244.

**INAG248 Topics in Sustainable Agriculture (1 Credit)**
Through readings, class discussions, and guest speakers, this one-credit seminar course exposes students to current trends, concerns and research in sustainable agriculture. It allows students to explore various interest areas and discuss a variety of topics as they relate to sustainable practices.
**Recommended:** INAG123.
**Repeatable to:** 2 credits if content differs.
**Additional Information:** The topics covered in this course change every year, guided by student interest, current research, and availability of guest speakers.

**INAG250 Fundamentals of Agricultural Mechanics (3 Credits)**
A comprehensive course that teaches the fundamentals of agricultural related mechanics. Lecture and lab exercises will cover the broad range of topics associated with agricultural mechanics including electricity, plumbing, welding processes, and wood and metal working applications. Emphasis will be given to the design and installation of electrical circuits. It will also include project planning and implementation including development of safety protocols for each area of study and introduction of GPS equipment and software for survey data collection.
**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources OR Permission of AGNR-Institute of Applied Agriculture Department.
**Credit Only Granted for:** PLSC204 or INAG250.
**Additional Information:** Priority given to IAA majors and AGNR students whose major requires this course. Permission will be granted to other students on seats available basis.

**INAG251 Landscape Construction (3 Credits)**
An introductory course in the basics of hardscape topics in landscape construction. Covers fundamental construction layout using surveying techniques; GPS; elements of construction dealing with wood, concrete, masonry, pavers, and/or electrical amenities used in hardscape construction. Emphasis will be placed on safety, interpretation of construction drawings or plans, specifications for specific structures, materials selection, cost estimations, site preparation and typical construction techniques.
**Prerequisite:** INAG250 or PLSC204.
**Restriction:** Must be in a major in AGNR-College of Agriculture & Natural Resources.
**Additional Information:** Priority enrollment is given to Landscape Management majors in the Institute of Applied Agriculture.

**INAG252 Agricultural Public Relations (3 Credits)**
Introduces the fundamental concepts and procedures of public relations in agriculture. Topics include understanding external audiences; key practices in agricultural media relations, social media, executive communication, and crisis communication; and managing the research, planning, and evaluation aspects of the public relations process. Students will gain the public relations knowledge and skills necessary for communicating effectively with an organization's external audiences.
**Recommended:** INAG103.

**INAG253 Agricultural Strategic Communication (3 Credits)**
Introduces the fundamental concepts and applications of strategic communication in agricultural organizations. Topics include strategic communication planning; communication and culture; communication and change; managing internal and external communication; and corporate responsibility. Students will learn how to use communication to accomplish organizational goals.
**Recommended:** INAG252.

**INAG272 Principles of Arboriculture (3 Credits)**
The establishment and maintenance of healthy trees in an urban setting will be studied. Lectures will focus on the environmental constraints to tree development in the city, and the role of physiological processes in regulating tree vigor. Laboratory exercises will cover the unique aspects of urban soils, tree valuation procedures, pruning and training, and supervised climbing.
**Cross-listed with:** PLSC272.
**Credit Only Granted for:** INAG272 or PLSC272.

**INAG288 Internship (1 Credit)**
On-site internship training in the student's major area of study. Students must complete a minimum of 320 working hours at an approved work site. Course work also includes weekly written assignments and a site visit assessment.
**Restriction:** Must be enrolled in the Institute of Applied Agriculture; or permission of the Institute of Applied Agriculture.
**Repeatable to:** 2 credits.

**INAG289 Internship Experience & Professional Development (3 Credits)**
Professional development and reflective analysis of the experience from the Practicum (INAG 288). Based on their 320-hours of internship work experience, students will write an internship report and analysis, deliver an oral presentation, and develop professional skills and materials needed to enter their careers.
**Prerequisite:** INAG288.
**Restriction:** Must be enrolled in the Institute of Applied Agriculture students; or permission of the Institute of Applied Agriculture.

# INST - Information Studies

**INST101 Bits and Bytes of Computer and Information Sciences (1 Credit)**
Students are introduced to the fields (and disciplines) of computer science and information science within a small classroom setting. They will learn to make a successful transition from high school to the university, while exploring study skills, student success plans and research opportunities.
**Cross-listed with:** CMSC100.
**Restriction:** For first time freshmen and first time transfer students; or permission of CMNS-Computer Science department.
**Credit Only Granted for:** CMSC100 or INST101.

**INST104 Design Across Campus (3 Credits)**
What is design, who does it, and how is it done? There is no one answer to this question--it depends on who you ask. The answers to these questions vary across disciplines and across the University campus. This course, designed with modules from contributors in UMD programs including Information Studies, Human-Computer Interaction, Graphic Design, Immersive Media Arts, Journalism, Architecture, Landscape Architecture, Engineering, and Policy, will introduce students to the goals and values, approaches, skills, and practices of diverse fields of design. It will enable students to identify grand challenges in design and serve as a sorting hat to help students find a design practice that matches their own values, approaches, skills and goals.

**INST123 Databases for All (3 Credits)**
An introduction to relational databases for students with no previous programming experience. Provides a means for students of diverse backgrounds to successfully learn how to store, retrieve, and maintain data in relational databases. Topics include a brief comparison of database systems with an emphasis on relational databases, fundamental relational database concepts, and data types. Includes technical approaches to accessing information stored in relational databases.
**Restriction:** Must not have completed or be currently taking INST327 or BMGT402.

**INST126 Introduction to Programming for Information Science (3 Credits)**
An introduction to computer programming for students with very limited or no previous programming experience. Topics include fundamental programming concepts such as variables, data types, assignments, arrays, conditionals, loops, functions, and I/O operations.
**Prerequisite:** Math placement of STAT100 or higher.
**Restriction:** Must not have completed INST326; and must be in Information Science, Technology and Information Design, or Social Data Science programs.

**INST127 Introduction to Programming for Information Science Lab (1 Credit)**
Laboratory component of INST126, Introduction to Programming for Information Professionals, is designed to complement the lecture and provide structured exercises and activities for students to practice and develop programming skills. INST 126 is an introduction to computer programming for students with very limited or no previous programming experience. Topics include fundamental programming concepts such as variables, data types, assignments, arrays, conditionals, loops, functions, and I/O operations.
**Corequisite:** INST126.

**INST151 Becoming A Social Media Influencer (3 Credits)**
Teaches students how to create, grow, and manage influential social media accounts. Topics will include tools for content creation, analyzing and strategizing with analytics, building community, and defining their niche and approach.
**Credit Only Granted for:** INST408N or INST151.
**Formerly:** INST408N.

**INST152 "Fake Checking": Battling Misinformation and Disinformation in the Real World (3 Credits)**
Examining the phenomenon of "fake news" using the principles of information literacy, students will develop their skills in locating, analyzing, and evaluating different information sources -- in the classroom, in their personal lives, and in the workplace.

**INST153 Records Scandals & Data Vandals: Public & Private Sector Controversies Ripped From The Headlines (3 Credits)**
Expressly organized around case studies about well-known individuals and organizations involved in scandals and controversies that have generated headlines around the world. It places these events in a larger historical, legal, technological, ethical and societal context. Drawing upon contemporaneous records in a variety of media, as well as presentations from invited speakers representing the greater archival, historical, and public interest communities, the course seeks to deepen students' appreciation of the role that records and information plays in issues going to the heart of government transparency, corporate accountability, and social justice.

**INST154 Apollo at 50 (3 Credits)**
Examines Apollo mission, one of the greatest engineering accomplishments of all time, in which Neil Armstrong walked on the moon. Since the mission, people have asked: if we can land on the moon, why can't we eliminate poverty? Why can't we cure cancer? Why can't we prevent global warming? Asks what were the social, political, financial, scientific, engineering, operational, and human aspects of the Apollo program that came together to make the moon landings possible?

**INST155 Social Networking (3 Credits)**
Introduces methods for analyzing and understanding how people use social media - social networking websites, blogging and microblogging, and other forms of online interaction and content generation - and their societal implications. Introduces students to the science and social science of network analysis. Through real world examples, including analysis of their own social networks, students develop skills for describing and understanding the patterns and usage of services like Facebook, Twitter, YouTube, and others.
**Credit Only Granted for:** INFM289I or INST155.
**Formerly:** INFM289I.

**INST156 How NASA Sees the Earth (3 Credits)**
The world of Earth science data is complex and can be overwhelming with a wide range of data sources and formats, hefty downloads and the need for complicated analytical tools. To make use of enormous volumes of available data and geoinformation products, one has to know where and how to search and obtain the data, how to analyze the data, and how to extract useful information and knowledge. In this course, you will learn about the state-of-the-art Web-based tools that allow you to efficiently display and analyze a large number of datasets in a way many professionals working in the Earth science domain would. You will learn how to visualize multiple Earth science datasets produced by NASA in a variety of ways directly on the Internet, without the need to download, manage and store them. Students will be introduced to comprehensive functions to analyze the data and generate customized maps, animations, multi-variable correlations, regional subsetting, etc.
**Cross-listed with:** GEOG156.
**Credit Only Granted for:** GEOG156 or INST156.

**INST201 Introduction to Information Science (3 Credits)**
Examining the effects of new information technologies on how we conduct business, interact with friends, and go through our daily lives. Understanding how technical and social factors have influenced the evolution of information society. Evaluating the transformative power of information in education, policy, and entertainment, and the dark side of these changes.
**Credit Only Granted for:** INST201 or INST301.
**Formerly:** INST301.

**INST204 Designing Fair Systems (3 Credits)**
Reviews how specific values are built into different automated decision-making systems as an inevitable result of constructing mechanisms meant to produce specific outcomes. These values create differential outcomes for the different people enmeshed in these systems, but both these values and these systems can be changed to support different values and different outcomes. The class serves as an introduction to the emerging field of algorithmic bias that bridges the disciplines of information science, computer science, law, policy, philosophy, sociology, urban planning, and others.
**Credit Only Granted for:** INST208D or INST204.
**Formerly:** INST208D.

**INST208 Special Topics in Information Studies (1-6 Credits)**
Covers special topics in information studies.
**Repeatable to:** 9 credits if content differs.

**INST210 The Nuts & Bolts of Getting Hired (1 Credit)**
Have you thought about finding an internship, getting a job, or starting your career? Perhaps you're confused about how to begin. Welcome to The Nuts and Bolts of Getting Hired, where you'll learn the skills necessary to develop your professional tool kit and obtain the internship or job that can help you build the career you want. This course will help you prepare for the next step in your career by exploring the following topics: Identifying your career goals, mastering the skills of crafting a professional resume, effective interviewing, strategic networking, and professional communication.
**Restriction:** Must be in the Information Science program, Technology and Information Design program, or Social Data Science program.
**Credit Only Granted for:** INST208C or INST210.
**Formerly:** INST208C.

**INST227 Fundamentals of Academic Peer Mentoring in Information Studies (1 Credit)**
Students will be exposed to scholarship of teaching and learning in support of developing applied skills to support active learning as an iSchool academic peer mentor. Students will learn to effectively coach and support the performance of other people. Guided online and face-to-face participation will culminate in a portfolio of teaching activities and professional development.
**Restriction:** Permission of the College of Information Studies.

**INST228 Academic Peer Mentor Experience in Information Science (1-3 Credits)**
Students who are participating in instructional activities for undergraduate courses offered by the College of Information Studies, or by faculty members of the College through other units, can take this course to earn course credit for their AMP work.
**Prerequisite:** Must have completed or be concurrently enrolled in TLTC333.
**Restriction:** Permission of INFO-College of Information Studies required.
**Repeatable to:** 6 credits if content differs.
**Formerly:** INST208M.

**INST232 Health Justice: Investigating the Roles of Information in Preventing & Addressing Health Disparities (3 Credits)**
How do we ensure that every individual has the information they need to live a long and healthy life? In this course, we explore health justice - the conviction and enactment of the idea that every person is morally entitled to a fair and sufficient capability to be healthy. We especially focus on the ways in which information-related factors, such as people's access to health information, their strategies for seeking (or avoiding) health information, and their health and digital health literacy, contribute to health (in)justice. Our goal in this class is to promote health justice for all by identifying information-related solutions that will help to facilitate people's access to health information and improve their abilities to find, assess, and make use of information to optimize their own and others' health.
**Restriction:** Must be a student in the Health Justice Carillon Community.

**INST301 Introduction to Information Science (3 Credits)**
Examining the effects of new information technologies on how we conduct business, interact with friends, and go through our daily lives. Understanding how technical and social factors have influenced the evolution of information society. Evaluating the transformative power of information in education, policy, and entertainment, and the dark side of these changes.
**Restriction:** Must be in Information Science program; and restricted to students in the Information Science Program on the Universities at Shady Grove campus.
**Credit Only Granted for:** INST201 or INST301.

**INST308 Education Abroad in Information Studies (1-3 Credits)**
Covers special topics in information studies in education abroad settings.
**Prerequisite:** Minimum grade of C- in MATH115 or higher; minimum grade of C- in INST126; and 1 course with a minimum grade of C- from (PSYC100, SOCY105, BSOS233).
**Restriction:** Must be in the Information Science program, Technology and Information Design program, or Social Data Science program.
**Repeatable to:** 9 credits if content differs.

**INST309 Independent Study in Information Science (1-3 Credits)**
Individual independent study of an aspect of information science, selected according to student interest and need in consultation with a member of the iSchool faculty. Repeatable to 6 credits if content differs.
**Prerequisite:** Must have completed INST301

**INST311 Information Organization (3 Credits)**
Examines the theories, concepts, and principles of information, information representation and organization, record structures, description, and classification. Topics to be covered in this course include the methods and strategies to develop systems for storage, organization, and retrieval of information in a variety of organizational and institutional settings, as well as policy, ethical, and social implications of these systems.
**Prerequisite:** Minimum grade of C- in PSYC100 or SOCY105.
**Restriction:** Must be in Technology and Information Design or Information Science program.

**INST314 Statistics for Information Science (3 Credits)**
Basic concepts in statistics including measure construction, data exploration, hypothesis development, hypothesis testing, pattern identification, and statistical analysis. The course also provides an overview of commonly used data manipulation and analytic tools. Through homework assignments, projects, and in-class activities, you will practice working with these techniques and tools to create information resources that can be used in individual and organizational decision-making and problem-solving.
**Prerequisite:** Minimum grade of C- in INST126 or GEOG276; and minimum grade of C- in STAT100, and MATH115 (or higher).
**Restriction:** Must be in Information Science or Social Data Science program.

**INST320 Leadership in Collaborative Learning Communities for Information Studies (3 Credits)**
This course is the experiential learning component for student leaders selected by the College of Information Studies to facilitate Guided Study Sessions. Student leaders plan and facilitate study sessions that supplement courses by providing additional opportunities to engage with the material. In this course, student leaders will explore and apply evidence-based learning strategies while developing an understanding of how we learn. Throughout this course you will apply principles of teaching and learning, group facilitation, and leadership into the design of your guided study session.
**Restriction:** Must be in the Information Science, Technology and Information Design, or Social Data Science program; and permission of the INFO College.

**INST326 Object-Oriented Programming for Information Science (3 Credits)**
An introduction to programming, emphasizing understanding and implementation of applications using object-oriented techniques. Topics to be covered include program design and testing as well as implementation of programs.
**Prerequisite:** Minimum grade of C- in INST126 or GEOG276.
**Restriction:** Must be in Information Science or Social Data Science program.

**INST327 Database Design and Modeling (3 Credits)**
Introduction to databases, the relational model, entity-relationship diagrams, user-oriented database design and normalization, and Structured Query Language (SQL). Through labs, tests, and a project, students develop both theoretical and practical knowledge of relational database systems.
**Prerequisite:** Minimum grade of C- in INST126 or GEOG276.
**Restriction:** Must be in Information Science or Social Data Science program.
**Credit Only Granted for:** INST327 or BMGT402.

**INST335 Organizations, Management and Teamwork (3 Credits)**
Examines principles, methods and types of leadership with an emphasis on goal setting, motivation, problem solving, and conflict resolution. Examines principles of developing teams and managing team projects through planning and execution, including estimating costs, managing risks, scheduling, staff and resource allocation, communication, tracking, and control. Trains students to recognize and capitalize on opportunities to use information to increase efficiency, improve performance, and support innovation within teams and organizations. Focuses on strategic use of emerging technologies and new information resources to execute information-enabled change.
**Prerequisite:** 1 course with a minimum grade of C- from (INST201, INST301); and minimum grade of C- in PSYC100.
**Restriction:** Must be in Information Science program.

**INST341 Introduction to Digital Curation (3 Credits)**
Explores various dimensions and contexts for digital curation, which includes all activities involving the management, representation and preservation of both born-digital and digitized information. Focuses on opportunities, challenges and demands of every-increasing digital data and networked information infrastructure.
**Prerequisite:** Must have completed with a C- or higher, or be concurrently enrolled in INST311.
**Restriction:** Must be in Technology and Information Design or Information Science programs.

**INST346 Technologies, Infrastructure and Architecture (3 Credits)**
Examines the basic concepts of computer hardware, systems software, networking, client/server architectures, cloud computing, distributed systems, and high performance computing as applied to information rich domains. Technology and architectures will be discussed within the contexts of solving social issues, supportingscience, and conducting business operations. Current computing topics such as web environments, IoT, security, management, and policy will also be reviewed.
**Prerequisite:** Minimum grade of C- from INST201 or INST301; and minimum grade of C- in INST326 and INST327.
**Restriction:** Must be in the Information Science program; and must have earned a minimum of 60 credits.
**Credit Only Granted for:** INST346 or BMGT405.

**INST347 Cloud Computing for Information Science (3 Credits)**
What is cloud computing? Where does cloud computing occur? How can we use cloud computing to solve problems and create opportunities in information science? In this course, the foundations and operation of cloud computing, with a focus on information science applications, will be presented. Key cloud functions such as computing, storage, databases, and networking will be examined. Major cloud providers will be contrasted. The course will conclude with a practical application of cloud services to design and implement a cloud solution to a social, technical, or environmental problem.
**Prerequisite:** Minimum grade of C- in INST346.
**Restriction:** Must be in the Information Science major.

**INST352 Information User Needs and Assessment (3 Credits)**
Focuses on use of information by individuals, including the theories, concepts, and principles of information, information behavior and mental models. Methods for determining information behavior and user needs, including accessibility issues will be examined and strategies for using information technology to support individual users and their specific needs will be explored.
**Prerequisite:** Minimum grade of C- from INST201 or INST301; and minimum grade of C- in INST311.
**Restriction:** Must be in Technology and Information Design or Information Science programs.

**INST354 Decision-Making for Information Science (3 Credits)**
Examines the use of information in organizational and individual decision-making, including the roles of information professionals and information systems in informed decision-making through techniques such as data analysis and regression, optimization, sensitivity analysis, decision trees, risk analysis and business simulation models.
**Prerequisite:** Minimum grade of C- from INST201 or INST301; and minimum grade of C- in INST314 and PSYC100.
**Restriction:** Must be in the Information Science program.

**INST362 User-Centered Design (3 Credits)**
Introduction to human-computer interaction (HCI), with a focus on how HCI connects psychology, information systems, computer science, and human factors. User-centered design and user interface implementation methods discussed include identifying user needs, understanding user behaviors, envisioning interfaces, and utilizing prototyping tools, with an emphasis on incorporating people in the design process from initial field observations to summative usability testing.
**Prerequisite:** Minimum grade of C- from INST201 or INST301; and minimum grade of C- from PSYC100 or SOCY105; and minimum grade of C- in INST326 and STAT100.
**Restriction:** Must be in the Information Science program or Technology and Information Design program; and must have earned a minimum of 60 credits.

**INST363 Fundamentals of Technology Innovation (3 Credits)**
Introduces students to the fundamentals of technology innovation, and how leaders approach innovation in the information science field. The course explores approaches and perspectives on how to develop an individual's capabilities to be better at leading others in an innovative environment. Combining theory and practice, students will be introduced to problem solving and explore ways to become an exceptional innovation leader.
**Restriction:** Must be in the Technology Innovation Leadership Minor; or permission of INFO-College of Information Studies.
**Credit Only Granted for:** INST408T or INST363.
**Formerly:** INST408T.

**INST364 Human-Centered Cybersecurity (3 Credits)**
Cybersecurity is fundamentally a problem of human interaction with technology, but its technical challenges are better understood than its human challenges. This course is designed to give you an overview of human interactions with cybersecurity technology, from users to system designers. Using the information gleaned in this course, you should be able to make better predictions about how people react to cybersecurity policies and tools, and how those reactions shape organizational behavior. The earlier part of the course focuses on explanations for behavior, while the later parts of the course focus more on the development and evaluation of tools for assisting people in cybersecurity.
**Prerequisite:** Minimum grade of C- from INST201 or INST301; and minimum grade of C- in INST327, STAT100, MATH115, and PSYC100.
**Restriction:** Must be in the Information Science program; or must be in the Information Risk Management, Ethics, and Privacy Minor.

**INST366 Privacy, Security and Ethics for Big Data (3 Credits)**
Evaluates major privacy and security questions raised by big data, Internet of things (IoT), wearables, ubiquitous sensing, social sharing platforms, and other AI-driven systems. Covers history of research ethics and considers how ethical frameworks can and should be applied to digital data.
**Prerequisite:** Minimum grade of C- from INST126 or GEOG276; and minimum grade of C- in STAT100; and minimum grade of C- in one of the following (AASP101, ANTH210, ANTH260, ECON200, ECON201,GEOG202, GVPT170, PSYC100, SOCY100, or SOCY105).
**Restriction:** Must be in the Information Science, Technology and Information Design, or Social Data Science programs; or must be in the Information Risk Management, Ethics, and Privacy Minor.

**INST367 Prototyping and Development Studio (3 Credits)**
Covers interaction design--the process of defining products and the broad services built around them--and user experience research--how you determine what to design and how successful your design is. When interacting with systems, people build expectations and mental models of how things work, based upon their previous experience with similar products or processes, and the successful or unsuccessful nature of their interactions determines the success of your design. This course is about how to design for digital interactions that will resonate with your audiences (how the features and functions of a product get translated into something people find usable, useful, and desirable), and the research that goes on throughout that process (from contextual inquiry to evaluating the final product), with a particular emphasis on prototyping and iteration.
**Prerequisite:** Minimum grade of C- in INST380.
**Restriction:** Must be in the Technology and Information Design program.
**Credit Only Granted for:** INST398A or INST367.
**Formerly:** INST398A.

**INST370 Information and Preparedness, Response and Recovery in Japan (3 Credits)**
Education abroad program in Japan. Examines how individuals and groups respond to disaster through informal and formal practices of community resilience and recovery. Focuses on Japanese uses of information for these purposes, including storytelling, game-based learning, social media, archives, and memorials. Examines Japanese principles of community and kizuna ("connectedness"). Includes 2 weeks of pre-departure online course in the US, 1 week of study and travel in Japan over spring break, and 2 weeks of post-return online coursework in the US.
**Prerequisite:** Minimum grade of C- in INST201, INST126, MATH115, PSYC100, or STAT100.
**Restriction:** Must be in the Information Science program.
**Credit Only Granted for:** INST370 or INST770.

**INST371 Teaching and Learning in Information Studies (3 Credits)**
Introduces students to foundational theories and practices of teaching and learning, with an emphasis on how they intersect with ideas from the Information Sciences. Covers foundational theories related to teaching and learning, social and cultural dimensions of learning, designing for learning, evaluating educational technologies, and ways of creating equitable, effective, and accessible learning experiences. Students will design learning activities for others, analyze educational tools and technologies, and explore ways to help teach others about the big ideas of Information Science.
**Prerequisite:** Minimum grade of C- in INST201; and minimum grade of C- from PSYC100 or SOCY105.
**Restriction:** Must be in the Information Science program or Technology and Information Design program.

**INST377 Dynamic Web Applications (3 Credits)**
An exploration of the basic methods and tools for developing dynamic, database-driven websites, including acquiring, installing, and running web servers, database servers, and connectability applications.
**Prerequisite:** 1 course with a minimum grade of C- from (INST201, INST301, or BSOS233); and minimum grade of C- in INST327, STAT100, and MATH115 (or higher).
**Restriction:** Restricted to Information Science and Social Data Science.
**Credit Only Granted for:** INST377 or BMGT406.

**INST380 Technology and Information Design: Do Good Now (3 Credits)**
Climate change. Poverty. Racism. Pressing social issues are big, complex, and difficult. They can feel overwhelming to understand and impossible to address. You might care deeply about an issue, and want to make a difference, but don't know where to start. Sometimes you might not even try. This course will equip and empower you to delve deep into understanding a social issue of your choosing. Through course materials and activities, you'll try out your changemaker muscles and mindsets. Our goal is that this course will empower you to be an informed, engaged citizen who contributes to your community with and beyond your profession. Along the way, we'll address questions like, "What is social change?" and "What happens when our actions have unintended consequences?" We'll talk about the importance of understanding, empathy, agency, and community, and reflect on how these concepts relate to us as individuals.
**Prerequisite:** Minimum grade of C- in INST201, INST126, STAT100; minimum grade of C- from (PSYC100, SOCY105).
**Restriction:** Must be in the Technology and Information Design program.
**Credit Only Granted for:** ARHU380, BSOS388B, PLCY388D, or PLCY380.

**INST381 Design Thinking for Visual Communication (3 Credits)**
In an age where technology increasingly permeates our daily existence, there remain certain human qualities that machines cannot replicate: creativity, curiosity, and empathy. This course endeavors to delve into the dynamic relationship between the pillars of aesthetics and the core skills of Design Thinking (DT), all with the goal of enhancing the design process. Throughout the course, we will witness instances where DT bolsters Visual Communication (VC), and conversely, where VC lends its support to the DT process. Our exploration will revolve around three pivotal questions: How can we engage users and establish meaningful connections with them? How can we empathize with users' challenges and provide them with effective solutions? How can we embrace a holistic approach to design?
**Prerequisite:** Minimum grade of C- in PSYC100 or SOCY105; and minimum grade of C- in INST126, INST201, and STAT100; and minimum grade of C- in MATH115 or higher.
**Restriction:** Must be in the Technology and Information Design major.
**Credit Only Granted for:** INST398J or INST381.
**Formerly:** INST398J.

**INST388 "Maker Movement" Approach to Computing (1 Credit)**
Informed by the "maker movement," this course allows students to merge their personal interests and hobbies with computing. This course is great for students new to computing who want to explore real world applications, or for more advanced students wanting an opportunity to engage in depth with a niche topic.
**Recommended:** C- or higher in INST126 or comparable introductory programming course.
**Repeatable to:** 3 credits if content differs.

**INST389 Supervised Internship in Information Science (1-3 Credits)**
Course will provide students with the knowledge, skills, and experiences that will help shape their goals as they begin their successful high-impact Information Career. It will prepare them to work an in an environment in which suitability for high-status positions is not determined by specific skills, but rather by ability to take initiative in complex, dynamic situations. Students must have an internship arranged before enrolling.
**Prerequisite:** Minimum grade of C- in MATH115 or higher; minimum grade of C- in INST126 or GEOG276; and minimum grade of C- in (PSYC100, SOCY105, or BSOS233).
**Restriction:** Must be in the Information Science program, Technology and Information Design program, or Social Data Science program.
**Repeatable to:** 6 credits.

**INST398 Special Topics in Information Studies (3 Credits)**
Selected topics in information studies.
**Prerequisite:** Minimum grade of C- in STAT100 or MATH115 or higher; and minimum grade of C- in INST126 or GEOG276; and minimum grade of C- in (PSYC100, SOCY105, or BSOS233).
**Restriction:** Must be in the Information Science program, Technology and Information Design program, or Social Data Science program.
**Repeatable to:** 9 credits if content differs.

**INST401 Design and Human Disability and Aging (3 Credits)**
Focuses on the design of consumer products and information systems to enable their use by persons with a wider range of physical, sensory, and cognitive abilities. Overviews aging and major types of impairment as they relate to resulting problems using consumer products and information systems. Focuses on principles of design of mass market products.
**Prerequisite:** Minimum grade of C- from INST362 or INST367.
**Restriction:** Must be in Technology and Information Design or Information Science programs.
**Credit Only Granted for:** INST408B or INST401.
**Formerly:** INST408B.

**INST402 Designing Patient-Centered Technologies (3 Credits)**
Companies have created a vast array of apps and other technologies for understanding managing personal health and wellness, but many of them have been created with little understanding of audience needs or potential ethical issues. Course introduces students to the unique challenges of studying people's health and wellness needs as well as designing and evaluating technologies to meet those needs.
**Prerequisite:** Minimum grade of C- from INST362 or INST367.
**Restriction:** Must be in Technology and Information Design or Information Science programs.

**INST403 Computational Journalism (3 Credits)**
Designed to teach the application of computational methods in journalism and reporting. The methods include natural language processing, visualization, and web data mining. The course will also cover the necessity and impact of journalistic ethics in designing computation solutions.
**Prerequisite:** Permission of the Philip Merrill College of Journalism.
**Cross-listed with:** JOUR473.
**Jointly offered with:** JOUR773.
**Credit Only Granted for:** JOUR479V, JOUR473, INST408I or INST403.
**Formerly:** JOUR479V and INST408I.

**INST405 Game Design (3 Credits)**
Games are a structured form of play that are typically undertaken for recreational--but sometimes also educational and even professional--purposes. But what constitutes a successful game? In this course, you will learn the fundamentals of game design: applying elements and principles of game design, such as goals, rules, and challenges to create games, such as board games, card games, and digital games. You will be introduced to the basic tools and methods of game design: paper and digital prototyping, design iteration, design critique, and user testing. As part of the course, you will be designing several games of different types. You will also learn how to use your skills to deconstruct and critique the components of existing games, as well as gain an understanding of the role of the game designer in real-world game development teams.
**Prerequisite:** Minimum grade of C- in INST126, STAT100 or INST201; and minimum grade of C- from PSYC100 or SOCY105.
**Restriction:** Must be in the Information Science program or Technology and Information Design program.
**Credit Only Granted for:** INST408J or INST405.
**Formerly:** INST408J.

**INST406 Cross Disciplinary Communication Lab (3 Credits)**
Explores the world of communicating the ideas behind the things we make. In design, the product tends to be the prize: a manifestation of experience, sensibilities, and observations. But products do not always articulate a complete picture of what they are and how they came to be. Communication--speaking, writing, depicting, presenting to various audiences--is an under-leveraged component of design, connecting the product with emotion, process, context, and most importantly, the audience.
**Prerequisite:** Minimum grade of C- in INST380; and a minimum grade of C- in Professional Writing General Education requirement.
**Restriction:** Must be in the Technology and Information Design program.

**INST407 Leading and Sustaining a Culture of Innovation (3 Credits)**
Successful leaders know that the key to value creation and sustained growth lies in innovation -- continuously seeking opportunities to create value whether by launching new products and services, entering new markets, or rethinking key processes. This course will focus on the most efficient leadership strategies, change management, team motivation, technology team management for information management within organizations. We will examine some of the best ways to foster innovative behaviors within a team and organization. Students will engage with a course-long culture change challenge.
**Restriction:** Must be in Technology Innovation Leadership minor; or permission of INFO-College of Information Studies.
**Credit Only Granted for:** INST408L or INST407.
**Formerly:** INST408L.

**INST408 Special Topics in Information Science (1-6 Credits)**
Selected topics in information studies.
**Prerequisite:** Minimum of a C- from (STAT100, MATH115 or higher); minimum of a C- from (INST126 or GEOG276); minimum of a C- from (PSYC100, SOCY105, or BSOS233).
**Restriction:** Must be in Information Science, Technology and Information Design, or Social Data Science program.
**Repeatable to:** 9 credits if content differs.

**INST410 Managing with Data and Simulations (3 Credits)**
General principles of modeling, data analysis, and decision-making methods. Approaches to evaluating and assessing effective concepts, methods, and procedures of modeling and data analysis for decision making in management, advocacy, and communication situations. Ethical considerations in management, advocacy, and communication situations in professional life.
**Prerequisite:** Minimum grade of C- in INST126 and STAT100; minimum grade of C- in PSYC100 or SOCY105; minimum grade of C- in INST201 or INST301; and minimum grade of C- in MATH115 or higher.
**Restriction:** Must be in the Information Science or Technology and Information Design programs.
**Credit Only Granted for:** INST408M or INST410.
**Formerly:** INST408M.

**INST414 Data Science Techniques (3 Credits)**
An exploration of how to extract insights from large-scale datasets. The course will cover the complete analytical funnel from data extraction and cleaning to data analysis and insights interpretation and visualization. The data analysis component will focus on techniques in both supervised and unsupervised learning to extract information from datasets. Topics will include clustering, classification, and regression techniques. Through homework assignments, a project, exams and in-class activities, students will practice working with these techniques and tools to extract relevant information from structured and unstructured data.
**Prerequisite:** Minimum grade of C- in MATH115 (or higher) and STAT100; and a minimum grade of C- from INST126 or GEOG276; and a minimum grade of C- from one of the following (INST201, INST301, or BSOS233); and a minimum grade of C- from one of the following (AASP101, ANTH210, ANTH260, ECON200, ECON201, GEOG202, GVPT170, PSYC100, or SOCY100); and a minimum grade of C- from BSOS233 or INST314.
**Recommended:** Minimum C- in MATH140 and (INST326, BSOS326, or GEOG376).
**Restriction:** Must be in Information Science or Social Data Science program.

**INST422 Modeling and Simulating Systemic Problems (3 Credits)**
General principles of systems thinking and feedback dynamics modeling. Approaches, methods, and tools for identifying, articulating, and addressing non-linear, feedback-driven, systemic problems. Approaches to evaluating and assessing systems thinking and feedback dynamics models. Ethical considerations in systems thinking and feedback dynamics modeling practice.
**Prerequisite:** Minimum grade of a C- in INST201, STAT100, and INST126; and minimum of a C- in PSYC100 or SOCY105.
**Restriction:** Must be in the Information Science, Technology and Information Design, or Global Health major.

**INST441 Information Ethics and Policy (3 Credits)**
Explores via case studies the legal, ethical, and technological challenges in developing and implementing policies for managing digital assets and information. Emphasizes access questions pertinent to managing sensitive information and the roles and responsibilities of information professionals.
**Prerequisite:** Minimum grade of C- from INST341 or INST380.
**Restriction:** Must be in the Information Science program or Technology and Information Design program.

**INST442 Digital Curation Across Disciplines (3 Credits)**
Examines how to apply digital curation principles, tools, and strategies in managing diverse data collections and digital information in different disciplinary settings. Explores differences among data curation principles and practices across diverse settings, ranging from scientific organizations (such as business and academic research laboratories and computational science settings), to humanities-based institutions (such as cultural heritage organizations) to social science-based institutions (such as data-intensive professional environments).
**Prerequisite:** Must have completed with a C- or higher, or be concurrently enrolled in INST341 or INST380.
**Restriction:** Must be in the Information Science program or Technology and Information Design program.

**INST443 Tools and Methods for Digital Curation (3 Credits)**
Introduces students to the application of digital tools and methods in a variety of organizational settings, academic disciplines, and economic sectors.
**Prerequisite:** Must have completed with a minimum grade of C-, or be concurrently enrolled, in INST341 or INST380.
**Restriction:** Must be in the Information Science program or Technology and Information Design program.

**INST447 Data Sources and Manipulation (3 Credits)**
Examines approaches to locating, acquiring, manipulating, and disseminating data. Imperfection, biases, and other problems in data are examined, and methods for identifying and correcting such problems are introduced. The course covers other topics such as automated collection of large data sets, and extracting, transforming, and reformatting a variety of data and file types.
**Prerequisite:** Minimum grade of C- in STAT100 and INST327; and a minimum grade of C- from one of the following (INST201, INST301, BSOS233); and a minimum grade of C- from one of the following (AASP101, ANTH210, ANTH260, ECON200, ECON201, GEOG202, GVPT170, PSYC100, or SOCY100); and a minimum grade of C- from BSOS233 or INST314; and a minimum grade of C- from one of the following (BSOS331, GEOG273, or INST326).
**Restriction:** Must be in Information Science or Social Data Science program.

**INST448 Digital Curation Research in Cultural Big Data Collections (3 Credits)**
Provides an overview for students interested in learning the theory and practices involved in digital curation, and how this is applied in managing and accessing information in large cultural data collections. The digital curation lifecycle will be used as the foundation for understanding how records/information are created, managed throughout active use, and preserved for future access. Cyber-infrastructure development and cultural Big Data collections will form the basis for instruction, research, and learning. Students will participate in class lectures, discussions, and complete reading assignments. Student learning will be reinforced by active engagement in project teams focused on cyber-infrastructure projects and large data collections involving justice, human rights, and cultural heritage documentation.
**Prerequisite:** Minimum grade of C- from INST341 or INST380.
**Restriction:** Must be in the Information Science program or Technology and Information Design program.
**Repeatable to:** 6 credits if content differs.

**INST450 Introduction to CRM in Salesforce (3 Credits)**
Students learn how to configure Salesforce so that they are able to collect, analyze and retrieve all of the vital information associated with their customer base. Moreover, students use Force.com fundamentals to understand Salesforce online application development and the deployment of next-generation cloud apps. The course offers practical hands-on learning that ensures students' job success as well as the theoretical knowledge needed to pass both Salesforce certification exams (ADM201 & Platform App Builder).
**Prerequisite:** INST327.
**Credit Only Granted for:** INST408P or INST450.
**Formerly:** INST408P.

**INST451 Consumer Health Informatics (3 Credits)**
Explores people's health-related information needs and whether, how, and why people seek out and use (or do not seek out and use) health information and the types of health information they find useful. We will also cover the important and interrelated topics of information avoidance, health behaviors, health literacy, digital health literacy, doctor-patient communication, and patient-to-patient communication through support groups and online communities. Throughout the course, we will also focus on the important concept of health justice - a world in which everyone has an adequate and equitable capability to be healthy.
**Prerequisite:** Minimum grade of C- in INST126, INST201 or STAT100; and minimum grade of C- from PSYC100 or SOCY105.
**Restriction:** Must be in the Information Science program or Technology and Information Design program.
**Credit Only Granted for:** INST408A or INST451.
**Formerly:** INST408A.

**INST452 Health Data Analytics (3 Credits)**
Health data analytics involves the extrapolation of actionable insights from patient data, using data sources such as electronic health records (EHRs), claims data, surveillance data, and surveys. Health data is complex, often unstructured and incomplete, and is organized for clinical care rather than to meet analytic needs. This course will involve the use of various analytical methods in order to translate large and complex data, whether structured or unstructured, into insights that improve decision-making from both the patient and provider perspectives. Healthcare data are rich and hold so much potential, but a challenge is presented to patients, providers, and even government agencies when it comes to figuring out how to leverage these data. Students in this course will learn foundational topics in data analytics focused on health data and will apply this knowledge to real health datasets through hands-on labs integrated into the lectures.
**Prerequisite:** Minimum grade of C- in INST126 or GEOG276; and minimum grade of C- in PSYC100 or BSOS233; and minimum grade of C- in STAT100 or MATH115 or higher.
**Restriction:** Must be in the Information Science program or Social Data Science program.

**INST453 Project Management for Information Science (3 Credits)**
Provides a comprehensive overview of project management, focusing on the needs of information resources (IR). The course covers the concepts and techniques for planning and execution of projects including developing work breakdown structure, estimating costs, managing risks, scheduling, staff and resource allocation, team building, communication, tracking, control, and other aspects of successful project completion.
**Credit Only Granted for:** BMGT485, ENCE320, ENCE325, INST408O or INST453.
**Formerly:** INST408O.

**INST455 Information Assurance and Compliance (3 Credits)**
Examines the protection of organizational data, personalized information, intellectual property and the associated assurance of the data's transfer, storage and communication. Students will understand how to manage these concerns and respond to both emergent and existing threats within the information domain. We will look at the key principles of Information Assurance, compliance and best practices in the real world.
**Credit Only Granted for:** INST408U or INST455.
**Formerly:** INST408U.

**INST456 Risk Management Leadership in the Information Age (3 Credits)**
Helps students assess and mitigate a range of vulnerabilities within an organization's data networks, allowing them to understand how to protect the integrity, security, and confidentiality of information.
**Credit Only Granted for:** INST408B or INST456.
**Formerly:** INST408B.

**INST461 Emerging Technologies and Risk Management (3 Credits)**
Focuses on how people and companies can achieve various tangible and intangible benefits and assess risk in using and incorporating emerging technologies (i.e. mobile devices, social media, robotic process automation, 3-D printing, cloud computing, blockchain technologies, artificial intelligence, etc.) into the activities and operations of a company.
**Credit Only Granted for:** INST408Z or INST461.
**Formerly:** INST408Z.

**INST462 Introduction to Data Visualization (3 Credits)**
Exploration of the theories, methods, and techniques of visualization of information, including the effects of human perception, the aesthetics of information design, the mechanics of visual display, and the semiotics of iconography.
**Prerequisite:** Minimum grade of C- in STAT100; minimum grade of a C- from one of the following (INST201, INST301, or BSOS233); minimum grade of C- in INST126 or GEOG276; a minimum grade of C- from one of the following (AASP101, ANTH210, ANTH260, ECON200, ECON201, GEOG202, GVPT170, PSYC100, SOCY100, or SOCY105); and a minimum grade of C- from BSOS233 or INST314.
**Restriction:** Must be in Information Science or Social Data Science program.

**INST463 Technology Socialprenuer (3 Credits)**
Introduces students to the role of technology and entrepreneurship in our society. Students will be able to choose an existing society issue and develop creative entrepreneurial ideas to solve it using innovative technologies. The course allows students to meet industry professionals and learn more about various social problems and projects companies focus on and try to solve in the modern world. Students are also able to contribute to those solutions.
**Credit Only Granted for:** INST398B or INST463.
**Formerly:** INST398B.

**INST464 Decision Making for Cybersecurity (3 Credits)**
Discusses human and organizational decision making from a variety of perspectives. Applies different risk assessment and decision making frameworks that are relevant to personal and organization cybersecurity, with a focus on the quantitative Factor Analysis of Information Risk (FAIR) model. Considers monetary, social and societal costs of cybersecurity decisions. Considers a range of questions relating to cybersecurity, from whether to install a game on a smartphone to how to allocate scarce information security resources in an organization.
**Prerequisite:** Must have earned a minimum grade of C- in INST201, INST126, MATH115, PSYC100, and INST364.
**Restriction:** Must be in Information Science program.
**Credit Only Granted for:** INST408W or INST464.
**Formerly:** INST408W.

**INST465 Design and Human Disability and Aging (3 Credits)**
Design of special and mainstream products and systems to include use by people facing barriers to use due to disability and aging. Includes introduction to people with disabilities and the tools they use and strategies for cross-disability inclusive design of special and mainstream technology.The class will then be divided into interdisciplinary design teams. These teams will be given a special or mass market product for which they are to develop a design which is more accessible, yet remains mass producible and marketable. Emphasis will be on practical mass-market design and the realities and constraints of design for commercial production and/or public systems.
**Prerequisite:** Minimum grade of C- in INST126 or INST201; and minimum grade of C- in PSYC100 or SOCY105; and minimum grade of C- in INST362 or INST367.
**Restriction:** Must be in the Information Science program or Technology and Information Design program.
**Credit Only Granted for:** INST408B or INST465.
**Formerly:** INST408B.

**INST466 Technology, Culture, and Society (3 Credits)**
Individual, cultural, and societal outcomes associated with development of information & communication technologies (ICTs), including pro- and anti-social factors. Unpacking how gender, race, ethnicity, sexual orientation, disabilities, and political affiliations affect consumption and production of online experiences. Unpacking how structures of dominance, power and privilege manifest at individual, institutional and cultural levels.
**Prerequisite:** Minimum grade of C- in INST201 or INST301; and minimum grade of C- in PSYC100 or SOCY105.
**Restriction:** Must be in the Information Science program or Technology and Information Design program.

**INST467 Fundamentals of Cybersecurity for Policy Makers (3 Credits)**
Explores the key issues facing policy makers attempting to manage the problem of cybersecurity from its technical foundations to the domestic and international policy considerations surrounding governance, response, critical infrastructure risk management, and privacy. Designed for students with little to no background in information technology, and will provide the principles to understand the current debates shaping a rapidly evolving security landscape.
**Prerequisite:** Must have completed with a C- or be concurrently enrolled in INST364.
**Restriction:** Must be in Information Science program.
**Credit Only Granted for:** INST408V, PLCY388C, or INST467.
**Formerly:** INST408V.

**INST470 Competitive Business Intelligence (3 Credits)**
Competitive intelligence (CI) is a derivative of governmental intelligence, as well as business marketing, economics, and management, that is defined similarly: the collection, evaluation, analysis, and application of legally available information relevant to the plans, decisions, and operations of one's organization. Topics will include an overview and comparison of the intelligence process in government and in business (i.e., the intelligence cycle), a detailed consideration of the requirements and the analytical segments of that process, a survey of current analytical tools, a survey of information sources and information acquisition activities, a survey of required personnel, physical and information security policies, and the necessary efforts in creating an effective CI unit within any business enterprise.
**Credit Only Granted for:** INST408K or INST470.
**Formerly:** INST408K.

**INST490 Integrated Capstone for Information Science (3 Credits)**
The capstone provides a platform for Information Science students where they can apply a subset of the concepts, methods, and tools they learn as part of the Information Science program to addressing an information problem or fulfilling an information need.
**Prerequisite:** Minimum grade of C- in INST311, INST314, INST326, INST327, INST335, INST346, INST352, and INST362.
**Restriction:** Must be in Information Science program; and must have earned a minimum of 90 credits; and permission of INFO-College of Information Studies.

# ISRL - Israel Studies

**ISRL249 Selected Topics in Israel Studies (3 Credits)**
Topics in the study of Zionism and contemporary Israel from the 1880's to the present. Future offerings may address history, politics, or culture.
**Recommended:** ISRL142.
**Repeatable to:** 6 credits if content differs.

**ISRL249G Diversify and Multiply: Jewish Culture and the Production of an Identity (3 Credits)**
Provides students with a unique exploration of cultural products produced by a diverse array of Jewish creators of literature, comedy and film. The texts, films, and performing arts touch on the central social, economic, and cultural issues of Jews during the ages, and up to the 21st century. This course will explore Jewish creativity throughout history, as well as the Jewish encounter with modernity as a whole. We will be diving into prominent creators such as Tiffany Haddish, Larry David, Sholem Aleichem, Adam Sandler, S. Y. Abramovitsch, Judd Apatow, Philip Roth, Amy Schumer, I. B. Singer, Ben Stiller, Franz Kafka, Dan Levy, and others. Examining their creations will open a window to the diverse methods of construction of modern Jewish identities.
**Cross-listed with:** CMLT242.
**Credit Only Granted for:** JWST272, CMLT242, or ISRL249G.

**ISRL256 Zionism and Sexual Revolution (3 Credits)**
A study of the changes within European Jewish communities that influenced the development of particular fantasies about and representations of gender, love, and sex in Palestine and Israel. We will investigate the broader intellectual and cultural contexts needed to understand the gender and sexual revolutions of the 19th and 20th centuries, and will examine how European and, later, Israeli Jews adopted and adapted these ideas and cultural forms. We will closely analyze a variety of texts (stories, plays, photographs, and films) and will consider the relationship between ideology and aesthetics.
**Cross-listed with:** JWST256.
**Credit Only Granted for:** ISRL249N, JWST219G, ISRL256, or JWST256.
**Formerly:** ISRL249N or JWST219G.

**ISRL269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ISRL283 The Israeli/Palestinian Conflict: Fundamental Questions (3 Credits)**
As has become evident virtually every year, the Palestinian-Israeli conflict retains its capacity to mobilize both sides against each other. Why are Palestinian Arabs and Israeli Jews unable to resolve their differences? This course uncovers some of the deeper explanations as to why the conflict persists, even as it changes over the decades.
**Credit Only Granted for:** ISRL283 or ISRL289I..
**Formerly:** ISRL289I.

**ISRL289 New Explorations in Israel Studies (3 Credits)**
Investigation of critical and innovative responses in Israel Studies. Although the topic will vary, the course will encourage intellectual exploration by students of fundamental problems and critical methods.

**ISRL299 Independent Study in Israel Studies (1-3 Credits)**
This lower-level independent study allows students to work closely with an Israel Studies faculty member of their choice, pending prior approval of the faculty member. In this independent study, students will focus on a topic specific to Israel Studies.
**Prerequisite:** Permission of ARHU-Meyerhoff Program & Center for Jewish Studies.
**Repeatable to:** 6 credits.

**ISRL329 Special Topics in Israel Studies (3 Credits)**
Topics in the study of Zionism and contemporary Israel from the 1880's to the present at an intermediate level. Individual sections may address history, politics, or culture.
**Repeatable to:** 9 credits if content differs.

**ISRL329G The Israeli Settler Movement: The Road to One State? (3 Credits)**
Explores the Israeli settler movement over the last four decades, from its position on the fringes of Israeli society in the 1970s and 1980s to its rise to prominence in Israeli politics today. Topics will include the history of the Israeli settlement project in the West Bank, the emergence of Gush Emunim and its ideological foundations in Jewish messianism, its violent offshoots, and the influence of the settler movement on the Israeli political system. Study of these topics illuminates some of the most important driving forces of modern history such as nationalism, religious fundamentalism, colonialism and the ability of a determined minority to influence a country's policies.
**Cross-listed with:** JWST332, HIST381.
**Credit Only Granted for:** HIST329G, HIST381, ISRL329G, JWST332 or JWST319N.
**Formerly:** JWST319N.

**ISRL330 Mizrahi Identity in Israel (3 Credits)**
It is impossible to understand Israeli society today without examining the Mizrahi experience. Despite the common misconception that Israel is predominantly made up of Jews from European origin, the fact of the matter is that Jews of Mizrahi origin, whose parents and grandparents immigrated to Israel from the Middle East and North Africa, represent a major part of the Israeli population. Moreover, Ashkenazi-Mizrahi relations continue to be a major source of tension in Israeli politics, and issues of race continue to come up on social media and polarize the Israeli society. This course brings to light narratives of Mizrahi identity in Israel and explores the trajectory of the Mizrahi struggle for equality and against racism through its various milestones: the 1959 Wadi Salib Revolt, the Black Panthers Movement in the 1970s, the emergence of the Israeli Sephardi-Orthodox party Shas, and the new wave of Mizrahi activism in the 21st century.
**Cross-listed with:** HIST377, JWST334.
**Credit Only Granted for:** JWST319D, JWST334, HIST377, HIST329Z, ISRL329M, or ISRL330.
**Formerly:** ISRL329M.

**ISRL342 History of Modern Israel (3 Credits)**
History of modern Israel since the beginning of the Zionist settlement in 1882. Attention to different interpretations and narratives of Israel's history, including the historical and ideological roots of Zionism, the establishment of the State of Israel, ideological forces, wars, and the triumphs and crises of democracy.Cross-listed with HIST376.
**Credit Only Granted for:** HIST376 or ISRL342.

**ISRL343 Global Migration and the Israeli Case Study (3 Credits)**
Over 70% of Israel's population is made of first, second or third generation immigrants, who came from over 70 countries, making Israel an ultimate immigrant society. This course will focus on the history of Israel as a case study for the understanding of the historical phenomena of modern immigration.
**Cross-listed with:** SOCY398G.
**Credit Only Granted for:** ISRL349K, GVPT368G, SOCY398G, SOCY398I, or ISRL343.
**Formerly:** ISRL349K.

**ISRL344 The Israeli Settler Movement: The Road to One State? (3 Credits)**
Explores the Israeli settler movement over the last four decades, from its position on the fringes of Israeli society in the 1970s and 1980s to its rise to prominence in Israeli politics today. Topics will include the history of the Israeli settlement project in the West Bank, the emergence of Gush Emunim and its ideological foundations in Jewish messianism, its violent offshoots, and the influence of the settler movement on the Israeli political system. Study of these topics illuminates some of the most important driving forces of modern history such as nationalism, religious fundamentalism, colonialism and the ability of a determined minority to influence a country's policies.
**Cross-listed with:** JWST332, HIST381.
**Credit Only Granted for:** HIST329G, HIST381, ISRL329G, ISRL344, JWST332 or JWST319N.
**Formerly:** JWST319N.

**ISRL349 Investigating Topics in Israel Studies (3-6 Credits)**
Topics in the study of Zionism and contemporary Israel from the 1880's to the present at an intermediate level. Individual sections may address history, politics, or culture.
**Recommended:** ISRL142 and ISRL249.

**ISRL350 The End of the Israel-Arab Conflict?? (3 Credits)**
Violence between Jews/Israelis and Arabs/Palestinians on both an inter-communal and inter-state level has been pervasive in the Holy Land for over a century. However, in the past few years, Israel has signed treaties with several Arab countries and more are likely in the near future. Is the larger Israel-Arab conflict ended, or nearly so? This course will examine the last 30 years to understand what has changed about these conflicts and what remains, and then explore different scenarios as to how peace may be possible and what it might look like.

**ISRL369 Special Topics in Study Abroad (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ISRL372 Jewry of Muscle: Zionism and Jewish Masculinity (3 Credits)**
Part of the Zionist cultural project involved creating a new Jewish masculinity that would replace the diasporic "sissy Jew" with a strong, healthy new "Jewry of Muscle." Using literary and cinematic sources, we will analyze how these Zionist and Israeli cultural productions served to build (and sometimes undermine) this new model of Jewish masculinity.
**Cross-listed with:** JWST372.
**Credit Only Granted for:** JWST319K, ISRL329K, JWST372 or ISRL372.
**Formerly:** JWST319K or ISRL329K.

**ISRL375 Jews and Representations of Race (3 Credits)**
Attention to the evolution of Western concepts of "race" from late medieval to modern times requires addressing the meaning of the term "race." How did constructions of Jewish "racial" identities fit into this broader discussion? As Christian Europe's primary minority for centuries, "the Jews" provide evidence for constructions of race as a means of grouping populations culturally and materially. How did Jews interact with the racial discourse of diverse time periods, and how did they negotiate their political realities by both adopting and challenging aspects of the rhetoric of antisemitism as well as the rhetoric of "whiteness" versus "blackness"?
**Cross-listed with:** JWST375.
**Credit Only Granted for:** ISRL375, JWST375, ISRL349Z, or JWST319M.
**Formerly:** ISRL349Z or JWST319M.

**ISRL448 Seminar in Israel Studies (3 Credits)**
Intensive study of an Israel Studies topic. Expected work product is a substantial research or analysis paper or appropriate equivalent.
**Recommended:** ISRL349 and ISRL249.
**Restriction:** Must be in the Israel Studies Minor.

**ISRL449 Advanced Topics in Israel Studies (3 Credits)**
Topics in the study of Zionism and contemporary Israel from the 1880s to the present at the advanced level. Individual sections may address history, politics, or culture. Some Sections may have language or course prerequisites.
**Recommended:** ISRL349 or ISRL249.
**Repeatable to:** 6 credits if content differs.

**ISRL499 Advanced Independent Study in Israel Studies (1-3 Credits)**
This upper-level independent study allows students to work closely with an Israel Studies faculty member of their choice, pending prior approval of the faculty member. In this independent study, students will focus on a topic specific to Israel Studies.
**Prerequisite:** Permission of ARHU-Meyerhoff Program & Center for Jewish Studies.
**Repeatable to:** 6 credits.

# ITAL - Italian

**ITAL103 Intensive Elementary Italian (4 Credits)**
Covers speaking, reading, writing, listening, and culture of Italian-speaking world.
**Prerequisite:** Must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Not open to fluent/native speakers of Italian.
**Credit Only Granted for:** ITAL103 or ITAL121.

**ITAL169 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ITAL203 Intensive Intermediate Italian (4 Credits)**
Covers speaking, reading, writing, listening, and culture of Italian-speaking world.
**Prerequisite:** ITAL103; or must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Must not have completed ITAL122; and must not be a fluent/native speaker of Italian.
**Credit Only Granted for:** ITAL203 or ITAL122.

**ITAL204 Advanced Intermediate Italian (3 Credits)**
An intensive study of Italian language and culture. This course completes the sequence of ITAL 103 and 203. After a brief review of important material of Intermediate Italian (ITAL 203), we will cover the last four chapters of Parliamo italiano (Unita 9-12). ITAL 204 is designed to reinforce and deepen the students' knowledge of Italian and its idiomatic usage, and to improve their reading and writing skills through a more in-depth study of more complex grammatical forms. Students are encouraged to practice Italian using grammatical concepts in an active manner. There will be oral and written exercises, short readings, and vocabulary expansion. Special attention will be given to readings, oral comprehension and written compositions. To improve their listening and reading comprehension, students will also view and analyze film clips, and read short articles in newspapers and magazines on current events and global issues pertaining to Italy and the European Union.
**Prerequisite:** ITAL203 or equivalent; or must have appropriate World Language Placement Test (WLPT) score.

**ITAL207 Speaking and Writing in Italian (3 Credits)**
An intensive upper intermediate language course that focuses on Italian speaking and writing. The course, which is taught entirely in Italian, is designed to reinforce and deepen the students' knowledge of the Italian language and its idiomatic usage, and to improve their speaking ability and listening comprehension. Students will be given practice both in speaking extemporaneously and giving oral reports written on a wide range of topics dealing with contemporary Italy. One of the main objectives of the course is to prepare students to take upper level courses (300-400 levels) in Italian language, literature, and culture
**Prerequisite:** ITAL204; or students who have taken courses with comparable content may contact the department.
**Restriction:** Must not be a fluent/native speaker of Italian.

**ITAL211 Intermediate Conversation (3 Credits)**
Practice in spoken Italian based on reading and listening exercises in a variety of genres. Written assignments and exams.
**Prerequisite:** ITAL203; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Must not be a fluent/native speaker of Italian.

**ITAL252 Stories of Italy (3 Credits)**
Introduction to fictions across time and space in Italy.
**Prerequisite:** ITAL207; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Must not be a fluent/native speaker of Italian.

**ITAL261 Cuisine, Culture, and Society in Italy Yesterday and Today (3 Credits)**
Exposes students to an important aspect of Italian culture: the art of gastronomy. Provides an in-depth understanding of the close relationship between food and culture, while enriching their knowledge of the Italian language through reading and analysis of various texts which deal with the preparation and adaptation of Italian food in different cultural settings. Taught in Italian.
**Prerequisite:** ITAL204; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**ITAL269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ITAL301 Italian Composition (3 Credits)**
Techniques of composition; grammatical analysis; various genres; vocabulary.
**Prerequisite:** ITAL207; or students who have taken courses with comparable content may contact the department.

**ITAL306 Commercial Italian I (3 Credits)**
An introduction to Italian Business language and culture. Special emphasis on communicative strategies used in business transactions and applications. Reading and discussion of relevant articles relating to business world from on-line newspapers and magazines.
**Prerequisite:** ITAL301; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**ITAL311 Advanced Oral Expression: Current Events (3 Credits)**
Oral expression; development of idiomatic forms and vocabulary to level of the Italian press.
**Prerequisite:** ITAL207; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**ITAL361 Survey of Italian Society and Culture: From Fascism to the Seventies (3 Credits)**
Development of Italian society and culture from Fascism to the 1970s. Literature, cinema, economy, popular culture, and daily life. Taught in Italian.
**Prerequisite:** ITAL207.

**ITAL362 Survey of Italian Society and Culture: From the 1980s to thePresent Day (3 Credits)**
Development of Italian society and culture from the 1980s to the present. Literature, cinema, economy, popular culture, daily life. Taught in Italian.
**Prerequisite:** ITAL207; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**ITAL369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ITAL386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.
**Restriction:** Junior standing or higher.

**ITAL388 Language House Colloquium (1 Credit)**
The Language House Colloquium is a one-credit course for students residing in the Language House Immersion Program. The course focuses on the further development of skills in the target language and the acquiring of cultural knowledge of the countries that speak the target language. The course is designed to supplement the learning that takes place on a daily basis in the Language House program.
**Restriction:** Must be a resident in Language House.
**Repeatable to:** 4 credits.

**ITAL399 Directed Study in Italian (1-3 Credits)**
Intended for undergraduates who wish to work on an individual basis with a professor of their choice.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 3 credits.

**ITAL411 Monsters and Demons: the Faces of Evil in Dante's Inferno (3 Credits)**
An interdisciplinary study of Dante's Inferno as represented in the Divine Comedy. Special emphasis on Dante's own portrayal of monsters and demons and their roles in the poet's eschatological vision of Hell.Taught in English

**ITAL421 The Italian Renaissance (3 Credits)**
A study of major trends of thought in Renaissance literature, art, and science. Taught in English.
**Credit Only Granted for:** ITAL421 or ITAL422.

**ITAL431 Italian Civilization in Translation (3 Credits)**
Political, social, intellectual, literary and artistic forces shaping contemporary Italy from the late Middle Ages to the present. Taught in English.
**Credit Only Granted for:** ITAL431 or ITAL432.

**ITAL433 Holocaust in Italian Literature and Cinema (3 Credits)**
Review of literature and theoretical writings of Italy's most famous survivor, Primo Levi, to a sampling of Italian films that focus in vastly different and often extremely controversial ways on the experience of the concentration camp, while addressing a series of central questions from the brutal realities of the camps to the "compromises" made in order to survive, the need to bear witness, and the idea of the survivor's guilt.
**Cross-listed with:** CINE433.
**Credit Only Granted for:** CINE433, FILM433 or ITAL433.
**Formerly:** FILM433.

**ITAL436 Italian Cinema I: Neorealism (3 Credits)**
Explores representations of Italy in cinema with special focus on identity formation and the movement of Italian neorealism and post neorealism. Taught in English.
**Cross-listed with:** CINE441.
**Credit Only Granted for:** CINE441, FILM441 or ITAL436.
**Formerly:** FILM441.

**ITAL441 The Dark Side of the Italian Renaissance (3 Credits)**
Examines the dark aspects of the Italian Renaissance, focusing on artistic and literary patronage as a strategy of self-promotion and as a means to achieve and preserve power. From the Northern court of Milan to the Southern Kingdom of Naples, we journey through the Italian peninsula, a land that gave birth to illustrious artists and poets in one of the most troubled periods of Italian history, marked by political conflict, bloody rivalries, family betrayals, and wars. What hides beneath the image of some of these benevolent and enlightened patrons of learning, often praised as "ideal rulers" by artists and writers of the Renaissance, are ambitious and crafty politicians, who sought their own interests and goals in their ruthless pursuit of power
**Recommended:** Some knowledge of Italian at the elementary or intermediate level.

**ITAL469 Study Abroad Special Topics IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**ITAL471 Italian Cinema: A Cultural Approach in Translation (3 Credits)**
The culture of Italy through the medium of film from the silent days up to the present. Taught in English.
**Credit Only Granted for:** ITAL471 or ITAL472.

**ITAL473 Italian Cinema II (In Translation) (3 Credits)**
A study of Italian society and culture through the medium of film from the mid 1970's to the present. Taught in English.
**Cross-listed with:** CINE431.
**Credit Only Granted for:** ITAL473, CINE431 or FILM431.
**Formerly:** FILM431.

**ITAL475 The Italian Opera Libretto in English (3 Credits)**
History and analysis of Italian opera librettos from Monteverdi through Mozart to Verdi and Puccini. Taught in English.
**Prerequisite:** Must have completed one course in literature.
**Credit Only Granted for:** ITAL475 or ITAL476.

**ITAL478 Colloquium in Italian (1 Credit)**
Colloquium section taught in Italian to accompany 400-level Italian courses taught in English. Discussion, presentations, readings.
**Prerequisite:** ITAL311; or students who have taken courses with comparable content may contact the department.
**Corequisite:** ITAL498, ITAL411, ITAL431, ITAL421, ITAL473, ITAL475, ITAL471, or ITAL499.
**Repeatable to:** 6 credits.

**ITAL498 Special Topics in Italian Literature (3 Credits)**
**Repeatable to:** 6 credits if content differs.

**ITAL499 Special Topics in Italian Studies (3 Credits)**
**Repeatable to:** 6 credits if content differs.

# ITAX - Italian Education Abroad

**ITAX100 Introduction to Italian Language and Culture (3 Credits)**
Open to students with no previous training in Italian, the course introduces features of the Italian language needed for interaction in everyday practical situations, such as the caffe, restaurant, accommodation and in shops. The course satisfies a limited number of immediate needs necessary for survival in the target language culture. Cultural topics, such as Italian gestures, the Italian family, the working world, religion, and women in Italy, will also be studied in order to familiarize the student with certain aspects of contemporary Italian society and culture.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ITAX101 Living Perugia: Elementary Language, Culture, and Reflection (4 Credits)**
The specific goals of the introductory course is to give students a basic lexicon to interact with everyday life, events and activities of their new host country, while at the same time teaching them the key building blocks of Italian grammar. The central objectives are therefore to provide students with the necessary tools by which they can engage - little by little - with the local community in a meaningful way, and to stimulate students to observe and reflect upon various aspects of the new culture surrounding them.
**Credit Only Granted for:** ITAL169 or ITAX101.
**Formerly:** ITAL169.
**Additional Information:** This course is offered as part of the Maryland-in-Perugia study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMPerugia. Education Abroad processes registrations for this course on behalf of students.

**ITAX103 The Florence Experience I (4 Credits)**
Students will develop basic cultural and linguistic/communicative competences (speaking, writing, reading and understanding) in Italian through an interdisciplinary experience. Introduces students to various aspects of contemporary Florentine life and Italian culture via field trips, interviews with local Florentines, and cultural activities facilitated by professional directors and playwrights.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11293. Education Abroad processes registrations for this course on behalf of students.

**ITAX110 Introduction To Italian Language and Culture (3 Credits)**
Introduces features of the Italian language needed for interaction in everyday practical situations, such as the cafe, restaurant, accommodations and in shops. Equips students with necessary skills for survival in the target language culture. Cultural topics, such as Italian gestures, the Italian family, the working world, religion, and women in Italy, are studied in order to familiarize the student with certain aspects of contemporary Italian society and culture.
**Credit Only Granted for:** ITAL169R or ITAX110.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ITAX201 Cultural Diversity in Italy (3 Credits)**
The different practices and experiences of cultural diversity and its challenges in contemporary Italy. The course will analyze the transition of Italy from a country of emigration to a country of both emigration and immigration.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**ITAX301 Florence: The Story of the City (3 Credits)**
Explores how the history of Florence is highly representative of the history of Italy as the cradle of many philosophical, artistic, and political ideas that were key in shaping the Western World. Students in this course will visit both well-known and hidden landscapes of Florence, identify its most celebrated spaces, and understand how the city has changed and how it has been shaped by the character of its people.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11293. Education Abroad processes registrations for this course on behalf of students.

**ITAX302 History of Fashion (3 Credits)**
Creativity, a taste for beauty, tradition and imagination have always been part of Italian culture, being key factors in the shaping of its extraordinary artistic heritage, and in the emergence of a specifically Italian style. Students will explore the evolution of Italian Fashion from the fourteenth century through a multi-faceted approach that includes site visits and considers the impact of gender and political structures, Renaissance art, the Florentine silk economy, the emergence of writings on Fashion and style, design experiments connected to the birth of Opera, and Hollywood and Cinecitta industries on clothing, costume, style, and production in our time. Course is taught in English.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11293. Education Abroad processes registrations for this course on behalf of students.

**ITAX304 The History and Culture of Food in Italy (3 Credits)**
Explores the history of food in Italy as a gateway to understanding present Italian culture. Students will examine the factors that have shaped Italian food, cuisine, and taste, the variations in eating habits of different socio-economic classes, and the essential role played by food in constructing Italian identities to shed light on fundamental patterns in Italian history and society.
**Additional Information:** This course is offered as part of the Maryland-in-Perugia study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMPerugia. Education Abroad processes registrations for this course on behalf of students.

# IVSP - Individual Studies Program

**IVSP317 Progress Report (1 Credit)**
A written analysis of the program. Students register for IVSP317 only once, the semester before the final term.
**Restriction:** Must be in Individual Studies program.

**IVSP318 Independent Learning Activities (1-6 Credits)**
An independent study course which students can use for a variety of out-of-class internship and research opportunities.
**Restriction:** Must be in Individual Studies program; and permission of faculty sponsor.
**Repeatable to:** 9 credits if content differs.

# JAPN - Japanese

**JAPN101 Elementary Japanese I (6 Credits)**
Introduction to basic patterns of contemporary spoken Japanese and to the two phonetic syllabaries (Katakana and Hiragana).
**Prerequisite:** Must have appropriate World Language Placement Test (WLPT) score.

**JAPN102 Elementary Japanese II (6 Credits)**
Continued introduction to the basic spoken patterns of contemporary Japanese.
**Prerequisite:** Minimum grade of C- in JAPN101; or appropriate World Language Placement Test (WLPT) score.

**JAPN201 Intermediate Japanese I (6 Credits)**
Contemporary spoken and written Japanese.
**Prerequisite:** Minimum grade of C- in JAPN102; or or appropriate World Language Placement Test (WLPT) score.

**JAPN202 Intermediate Japanese II (6 Credits)**
Contemporary spoken and written Japanese.
**Prerequisite:** Minimum grade of C- in JAPN201; or appropriate World Language Placement Test (WLPT) score.

**JAPN221 Radical Transformations in Japanese Culture (3 Credits)**
Since the early modern period, Japanese cultural forms have reflected the innate instability of contemporary social structures. Focusing on Noh drama, Matsuo Basho's haiku travelogue Oku no hosomichi, popular fiction by Ihara Saikaku, the movement for vernacular literature in the late 19th century, the rise and fall of Marxists and feminists in early 20th century Japan, a variety of perspectives on WWII and its legacy, as well as Japanese pop culture, we will consider the way cultural works developed as part of Japan's radical transformations in the last four centuries. A major film component increases students' direct exposure to the work of Japan's cultural producers, and students' suggestions and interests will help shape the final unit of the course about Japan today. Taught in English, and all readings are in English translation.

**JAPN269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**JAPN298 Special Topics Japanese Literature (3 Credits)**
Special topics in Japanese literature.
**Repeatable to:** 9 credits if content differs.

**JAPN301 Advanced Japanese I (6 Credits)**
Advanced conversation, oral comprehension, and selected readings.
**Prerequisite:** Minimum grade of C- in JAPN202; or permission of instructor.

**JAPN302 Advanced Japanese II (6 Credits)**
Continued readings in varied modern texts and advanced conversation and oral comprehension.
**Prerequisite:** Minimum grade of C- in JAPN301; or permission of instructor.

**JAPN311 Traditional Japanese Language and Culture (3 Credits)**
Introduction to classical Japanese language (kobun) through representative texts and genres from the literary traditions of the Heian period (794-1185) to the Early Modern period (1600-1868). Taught in Japanese and English.
**Prerequisite:** Minimum grade of C- in JAPN202; or permission of instructor.

**JAPN316 Women and Japanese Literature: Japanese Literature in Translation (3 Credits)**
Close critical reading of a range of Japanese literary texts that deal in some significant manner with gender, sex and sexuality. Taught in English.

**JAPN325 Modern Japanese Literature and Film (In Translation) (3 Credits)**
Explores and questions the significance of some of modern Japan's most dynamic historical transformations, pressing social issues, and modes of cultural expression. Covers the Meiji period (1868-1912) to the 21st century.

**JAPN345 Mapping Premodern Japan (3 Credits)**
Mapping Premodern Japan investigates travel in Japan through concentrated study of a key route in the premodern period. We will explore the role travel played in larger social, political, economic, and cultural structures and how stories of travel shaped ideas of identity, place, and national culture. We will analyze scholarship, conduct research, and learn the process for developing authentic scholarship in Cultural Studies. The course will culminate in a digital humanities final project in which students will conduct research on the major site of study and present their findings using digital storytelling. Taught in English.
**Credit Only Granted for:** JAPN498M, JAPN498T, or JAPN345.
**Formerly:** JAPN498T and JAPN498M.

**JAPN369 Special Topics in Study Abroad (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**JAPN386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.
**Restriction:** Junior standing or higher.

**JAPN388 Language House Spring Colloquium (1 Credit)**
For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.
**Restriction:** Must be a resident of Language House.
**Repeatable to:** 8 credits.

**JAPN401 Readings in Modern Japanese Literature (3 Credits)**
Development of advanced reading, vocabulary, grammar, and translation skills through selected readings in Japanese drawn primarily from modern literature.
**Prerequisite:** Minimum grade of C- in JAPN302; or permission of instructor.

**JAPN402 Readings in Japanese Cultural Studies (3 Credits)**
Development of advanced reading, vocabulary, grammar, and translation skills through selected readings in Japanese drawn from the fields of history, social sciences, cultural studies, film studies, and popular culture.
**Prerequisite:** Minimum grade of C- in JAPN302; or permission of instructor.

**JAPN407 The Art of Translation (3 Credits)**
Theory and practice of translation. Variety of genres. Japanese to English.
**Prerequisite:** 1 course with a minimum grade of C- from (JAPN401, JAPN402); or students who have taken courses with comparable content may contact the department.

**JAPN408 Special Topics in Japanese (3 Credits)**
Topic in the Study of Japanese, to be announced each time course is offered. Taught in Japanese.
**Prerequisite:** Minimum grade of C- in JAPN302; or permission of instructor.

**JAPN412 Classical Japanese (3 Credits)**
Continuation of JAPN 411 with more advanced classical Japanese.
**Prerequisite:** JAPN411.

**JAPN418 Japanese Literature in Translation (3 Credits)**
Representative works of Japanese literature in translation.
**Repeatable to:** 9 credits if content differs.

**JAPN421 History of the Japanese Language (3 Credits)**
Investigation of the origin of the Japanese language, its relationship with other languages, and its development. Taught in English, but presumes knowledge of Kanji (Chinese characters).
**Prerequisite:** JAPN102; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**JAPN424 Japan From the Margins (3 Credits)**
Japan from the Margins takes as its focus the history and representations of various others in Japanese society. They include ethnic Ainu, Okinawans, and Koreans, a historical outcaste group called the Burakumin, and people marginalized for their non-normative gender and sexual practices. Students learn about the historical specificities of each group as well as their common experiences of institutional discrimination as they grapple with larger questions regarding prejudice, nationalism, and social justice. Taught in English.

**JAPN425 The Atomic Bomb in Literature and Memory (3 Credits)**
Study of declassified documents and commentary on the United States decision to use the bomb in 1945, the many ways Japanese writers have attempted to express their indescribable experiences in Hiroshima and Nagasaki, and the shaping of historical narratives and national identities in post-war Japan and the U.S. Taught in English.

**JAPN428 Seminar in Japanese Discourse and Conversation Analysis (3 Credits)**
Presentation and discussion of classic and current readings in English and Japanese on theories and actual practice of discourse and conversation analysis. Students will learn transcription techniques and have an opportunity to apply them in a final term paper.
**Prerequisite:** JAPN302.
**Recommended:** JAPN422.
**Repeatable to:** 6 credits if content differs.

**JAPN438 Topics in Japanese Pragmatics (3 Credits)**
Basic concepts in the field of pragmatics (the study of language in context) such as deixis and indexicality, speech acts, ellipsis, and politeness. Readings in English on English and Japanese examples.
**Prerequisite:** JAPN201.
**Recommended:** JAPN422.
**Repeatable to:** 9 credits if content differs. Jointly offered with JAPN638.

**JAPN445 Performance and Sexuality in Early Modern Japan (3 Credits)**
Explores the intersections between performance and sexuality in early modern Japan. Our main sites will be the stage, the brothels, and everyday life as we examine how people of the period performed gender and sexuality. We will draw from popular fiction, kabuki, puppet theatre, woodblock prints, guides to the pleasure quarters, and censorship edicts. Taught in English.
**Credit Only Granted for:** JAPN498J or JAPN445.
**Formerly:** JAPN498J.

**JAPN447 Technologies of Japanese Performance (3 Credits)**
Explores technologies of performance in Japan across the centuries. We will focus on concepts of likeness and liveness as they manifest in performance's mythical origins, the traditions of noh drama, the popular, commercial theatres of kabuki, bunraku, and Takarazuka, and contemporary experiments with robotics, Vocaloids, and other new technologies. Taught in English.
**Credit Only Granted for:** JAPN498P or JAPN447.
**Formerly:** JAPN498P.

**JAPN498 Special Topics in Japanese Studies (3 Credits)**
Special topics in Japanese studies. Taught in English.

**JAPN499 Directed Study in Japanese (1-3 Credits)**
**Prerequisite:** Permission of instructor.
**Repeatable to:** 6 credits if content differs.

# JOUR - Journalism

**JOUR130 Self-Presentation in the Age of YouTube (3 Credits)**
Students, as they make use of evolving technologies, need to be able to present themselves effectively in front of any number of different audiences through any number of different outlets. Whether in an interview on radio, a guest presentation at a conference, in comments on a video blog, in commentary on TV, in the lead on a self-produced YouTube video, or as spokesperson in front of investors or management, professionals need strong oral communication skills. This class focuses on strengthening those skills through active individual and group presentations, as well as, through discussion of key techniques and group critique of presentation publicly available in the social media space on sites such as YouTube.
**Credit Only Granted for:** COMM107, COMM200, ENES143, INAG110, JOUR130 or THET285.
**Additional Information:** May not count toward the Journalism major.

**JOUR150 Introduction to Mass Communication (3 Credits)**
Survey of the functions and effects of the mass media in the United States. A consumer's introduction to newspapers, television, radio, film, sound recording, books, magazines, and new media technology.
**Additional Information:** Not applicable toward journalism major.

**JOUR152 Introduction to Storytelling with Code (1 Credit)**
An introduction to the ways markup and programming languages and computational thinking are transforming news reporting and storytelling.
**Prerequisite:** Must have completed or be concurrently enrolled in JOUR200.

**JOUR175 Media Literacy (3 Credits)**
An analysis of the information, values and underlying messages conveyed via television, newspapers, the internet, magazines, radio and film. Examines the accuracy of those messages and explores how media shape views of politics, culture and society.
**Additional Information:** Not applicable toward journalism major.

**JOUR181 Grammar for Journalists (1 Credit)**
The basic grammatical structures of standard American written English and its conventions of punctuation, diction and usage in journalistic writing.
**Credit Only Granted for:** ENGL181, ENGL281, or JOUR181.

**JOUR199 Survey Apprenticeship (1 Credit)**
College-monitored experience in approved mass-communications organizations and industries.
**Prerequisite:** Permission of JOUR-Philip Merrill College of Journalism.
**Repeatable to:** 6 credits if content differs.
**Formerly:** JOUR198.

**JOUR200 Journalism History, Roles and Structures (3 Credits)**
Introduction to the study of journalism from the standpoint of media history and sociology.

**JOUR201 News Writing and Reporting I (3 Credits)**
Introduction to news for the print and electronic media, development of new concepts: laboratory in news-gathering tools and writing skills. Students who earned 80% or higher on the JOUR181 diagnostic are exempt from the JOUR181 prerequisite.
**Prerequisite:** Minimum grade of C- in ENGL101, JOUR181, and JOUR200; and permission of JOUR-Philip Merrill College of Journalism.
**Restriction:** For students intending to be journalism majors; and permission of JOUR-Philip Merrill College of Journalism.

**JOUR202 News Editing (3 Credits)**
Copy editing, fact checking, verification and research across media platforms, including social, with consideration of story play and placement, graphic principles, headlines and SEO.
**Prerequisite:** JOUR201.
**Restriction:** Must be in a major in JOUR-Philip Merrill College of Journalism.

**JOUR203 Introduction to Multimedia Skills (3 Credits)**
Examining the basics of producing and editing digital photos, video, and audio. Topics include: framing, lighting, and other aspects of composition; sequencing, using wide, medium, and tight shots; and ethical considerations when collecting sound and visuals.
**Prerequisite:** JOUR201.
**Restriction:** Must be in a major in JOUR-Philip Merrill College of Journalism.
**Credit Only Granted for:** JOUR203 or JOUR328G.
**Formerly:** JOUR328G.

**JOUR267 Introduction to Social Media and Audience Engagement (3 Credits)**
Provides students with an overview of how journalists use social media to gather information, tell stories and reach their target audience. Students will develop skills in social content creation, audience engagement and sourcing and verification.
**Credit Only Granted for:** JOUR268 or JOUR267.
**Formerly:** JOUR268.

**JOUR281 Media Law and Ethics in the Digital Age (3 Credits)**
What are our legal rights and ethical responsibilities as citizens of the digital world? That is the big question we will be exploring this semester. Along the way, you will learn the constitutional foundations of free speech and consider their present-day applications to information gathering and sharing by citizens through social media and online platforms. You will come away with a practical working knowledge of the First Amendment, public access laws, libel, privacy, copyright. You'll develop critical thinking skills for recognizing and dealing with common ethical issues in digital communication.
**Credit Only Granted for:** JOUR289E or JOUR281.
**Formerly:** JOUR289E.
**Additional Information:** This course is intended for non-journalism majors.

**JOUR282 Beyond Facebook: How Social Media are Transforming Society, Culture, Business and Politics (3 Credits)**
How has social media changed the world, and how has the world changed social media? This course explores how social media has influenced relationships, culture, industry, politics, and the information environment, as well as how significant global events and technological advancements have contributed to the evolution of social media. This course gives students a broad contextual understanding of social media that they may apply in their daily lives as well as future academic inquiry.
**Credit Only Granted for:** JOUR289F or JOUR282.
**Formerly:** JOUR289F.

**JOUR283 Probing War: Investigative Narratives and American Conflicts (3 Credits)**
What role should the American news media play when the United States is at war? Students will explore the realities of war through the work of journalists who pushed beyond the daily headlines, some risking life and limb, to challenge official versions and document uncomfortable realities about American conflicts.
**Credit Only Granted for:** JOUR283 or JOUR289J.
**Formerly:** JOUR289J.

**JOUR284 Scandal: Exposing Corruption, Justice, and Vice in America (3 Credits)**
What are the ingredients of a juicy scandal? Money? Sex? Power? How are scandals uncovered? Why does society punish some scoundrels but not others? Come explore both serious and salacious scandals with a professor who's an expert in both--and who once exposed many scandals himself when he was an investigative reporter. This class examines scandals in politics, science, religion, social media, business, government, sports, and higher education; feeding frenzies, tabloid scandalmongering, undercover reporting, apologies, and cancel culture. Learn why even trivial scandals matter--and how scandals reflect what we value and ultimately who we are.
**Credit Only Granted for:** JOUR289P, JOUR284 or HONR239J.
**Formerly:** JOUR289P, HONR239J .

**JOUR300 Journalism Ethics (3 Credits)**
Examination of ethical problems in news writing and reporting.
**Prerequisite:** JOUR201.
**Restriction:** Must be in a major in JOUR-Philip Merrill College of Journalism.

**JOUR320 News Writing and Reporting II: Multiplatform (3 Credits)**
Principles and practices of news reporting; covering news beats and other news sources, including researching news stories for accuracy, comprehensiveness and interpretation. Due to rigorous publication requirement, plan your schedule accordingly.
**Prerequisite:** Must have completed or be concurrently enrolled in JOUR152; and minimum grade of C- in JOUR201; and must have completed or be concurrently enrolled in JOUR262 or JOUR370.
**Restriction:** Must be in a major in JOUR-Philip Merrill College of Journalism.

**JOUR325 Capital News Service Bureau (9 Credits)**
Advanced journalism training. Students report as part of college's Capital News Service program.
**Prerequisite:** JOUR320; and permission of JOUR-Philip Merrill College of Journalism.

**JOUR327 Urban Affairs Reporting (3 Credits)**
Students are immersed in coverage of issues affecting cities, working on a semester-long multi-platform reporting project based in Baltimore.
**Prerequisite:** JOUR320; and permission of instructor. Jointly offered with JOUR627.
**Credit Only Granted for:** JOUR327 or JOUR627.

**JOUR328 Special Topics in News Writing and Reporting (1-3 Credits)**
Advanced training and practice in writing and reporting news.
**Repeatable to:** 6 credits if content differs.

**JOUR334 Audio and Podcast Reporting (3 Credits)**
Students will learn the tools needed to report and produce short- and long-form audio storytelling, including writing, reporting, interviewing, production, editing, hosting and delivery. Field reporting and audio gathering outside of class are required, along with writing and mixing broadcast-quality audio stories. Students will work together to produce a complete radio broadcast on deadline, with live and pre-recorded elements. Various interests in audio reporting are welcome and encouraged.
**Prerequisite:** JOUR360.
**Formerly:** JOUR368L.

**JOUR343 Investigative Reporting (3 Credits)**
Students will learn the essentials of accountability reporting while producing a publishable, in-depth project on an issue with national significance and impact on people's lives. Substantial fieldwork, teamwork and persistence are required.
**Prerequisite:** JOUR320; or must have completed or be concurrently enrolled in JOUR361. And permission of instructor.
**Credit Only Granted for:** JOUR328I or JOUR343.
**Formerly:** JOUR328I.

**JOUR347 News Videography (3 Credits)**
Introduction to shooting, editing and production of video stories for broadcast and the Web; includes newsgathering in the field.
**Prerequisite:** Must have completed or be concurrently enrolled in JOUR201.
**Jointly offered with:** JOUR603.
**Restriction:** Permission of JOUR-Philip Merrill College of Journalism.
**Credit Only Granted for:** JOUR262, JOUR347 or JOUR603.
**Formerly:** JOUR262.

**JOUR352 Interactive Design and Development (3 Credits)**
Conceptualize, wireframe, design and build responsive Web pages using HTML, style sheets and other coding tools; work with open source interactive tools, JavaScript libraries, multimedia and text to create charts, timelines, maps and other forms of nonfiction storytelling.
**Prerequisite:** JOUR152; and JOUR201; and must have completed or be concurrently enrolled in JOUR262 or JOUR370. Or permission of JOUR-Philip Merrill College of Journalism.
**Restriction:** Must be in a major in JOUR-Philip Merrill College of Journalism. Jointly offered with JOUR652.
**Credit Only Granted for:** JOUR352 or JOUR652.

**JOUR353 News Bureau: Multimedia Reporting (6 Credits)**
Advanced reporting and writing in an online environment focusing on multimedia, non-traditional storytelling and investigative reporting.
**Prerequisite:** JOUR352; and permission of JOUR-Philip Merrill College of Journalism; and (JOUR320 or JOUR360).

**JOUR355 News Bureau: Multimedia Editing and Production (6 Credits)**
Advanced online journalism training. Students work as multimedia and social media editors and producers, building interactive content and special reports.
**Prerequisite:** JOUR320 or JOUR360; and JOUR352; and permission of JOUR-Philip Merrill College of Journalism.

**JOUR357 Capital News Service Broadcast Immersion (6 Credits)**
Advanced broadcast journalism training. Students report as part of the College's Capital News Service program.
**Prerequisite:** JOUR361; and permission of JOUR-Philip Merrill College of Journalism.

**JOUR358 Special Topics in Visual Communication (3 Credits)**
Advanced training and practice in visual communication.
**Prerequisite:** JOUR320 or JOUR360.
**Repeatable to:** 6 credits if content differs.

**JOUR360 News Writing and Reporting II: Broadcast (3 Credits)**
Writing and reporting for broadcast media: production of news stories.
**Prerequisite:** Minimum grade of C- in JOUR201.
**Restriction:** Must be in a major in JOUR-Philip Merrill College of Journalism.

**JOUR361 Television Reporting and Production (3 Credits)**
Writing and editing for the broadcast media. Interpretive and documentary news stories.
**Prerequisite:** JOUR262 and JOUR360.

**JOUR362 Broadcast News Producing (3 Credits)**
Producing TV news.
**Prerequisite:** JOUR262 and JOUR360; and must have completed or be concurrently enrolled in JOUR361.

**JOUR364 Advanced Audio and Podcast Reporting (3 Credits)**
Students will receive professional skills training in the reporting, writing, editing, voicing and production of radio news. Students will be required to do extensive field reporting, along with writing and mixing radio pieces. They will also participate in other aspects of radio news production, including editing, directing, live interviewing and hosting. By the end of the semester, students will have created all the elements of a complete radio broadcast. The class will also delve into the history and evolution of radio news and its future in podcasting and other forms.
**Prerequisite:** JOUR 334.
**Jointly offered with:** JOUR664.

**JOUR367 Broadcast News Bureau (9 Credits)**
Advanced broadcast journalism training. Students report as part of the college's Capital News Service program.
**Prerequisite:** JOUR361; and permission of JOUR-Philip Merrill College of Journalism.

**JOUR368 Topics in Broadcast and Electronic Media (1-3 Credits)**
Advanced research, analysis and/or practice of selected topics in broadcast journalism.
**Repeatable to:** 6 credits if content differs.

**JOUR370 Photojournalism (3 Credits)**
Examining the basics of shooting, editing and storytelling with still photos taken with 35mm digital cameras. Students shoot portraits, feature photos and action shots. Final project is a photo story/essay.
**Prerequisite:** Must have completed or be concurrently enrolled in JOUR201.
**Restriction:** Permission of JOUR-Philip Merrill College of Journalism.
**Credit Only Granted for:** JOUR370 or JOUR670.
**Additional Information:** Students are required to borrow, rent or purchase a 35mm digital camera. Contact department for camera specifications.

**JOUR371 Feature Writing (3 Credits)**
Research and writing feature articles.
**Prerequisite:** JOUR320.

**JOUR382 Sports Reporting and Writing (3 Credits)**
Gives students full and wide-ranging instruction in all aspects of sports reporting and writing, including how to report, write, edit and lay out sports stories, incorporating photography and multimedia. We will also discuss ethics, objectivity, fairness and the future of sports journalism.
**Prerequisite:** JOUR320; and permission of JOUR-Philip Merrill College of Journalism.
**Jointly offered with:** JOUR682.
**Credit Only Granted for:** JOUR328B, JOUR382 or JOUR682.
**Formerly:** JOUR328B.

**JOUR383 Advanced Photojournalism (3 Credits)**
Provides a deeper dive into the storytelling medium of photojournalism. Students will learn the skills necessary to tell in-depth, long-term stories through the use of still photography. Topics of discussion will include the history of photojournalism, changing approaches to the photo story/essay, how to approach a variety of potential subjects and situations, finding long-term photo story projects and organizing images for a variety of digital and traditional formats.
**Prerequisite:** JOUR370.
**Credit Only Granted for:** JOUR368N or JOUR383 .
**Formerly:** JOUR368N.

**JOUR384 Social Media Content Creation, Audience Engagement and Analytics (3 Credits)**
Provides students with an overview of social media best practices for journalists and will work to develop their skills in social content creation, audience engagement, sourcing and verification and analytics. By the end of this course, students will have the practical skills needed to manage a social media account for themselves or to contribute to the management of a news organization's social media presence.
**Prerequisite:** JOUR320 or JOUR360.
**Jointly offered with:** JOUR657.
**Credit Only Granted for:** JOUR368D or JOUR384 .
**Formerly:** JOUR368D.

**JOUR389 News Coverage of Special Topics (1-3 Credits)**
Advanced training and practice in writing and reporting news in one specialized field of interest.
**Repeatable to:** 6 credits.

**JOUR396 Supervised Internship (2 Credits)**
Students will complete a minimum of 90 hours in a supervised journalism internship over a minimum of 10 weeks in spring and fall, and eight weeks in summer. Emphasis is on relating academic training to professional experience. To enroll, students must do the following: Fill out the internship proposal form, have their internship supervisor fill it out, and meet with the college's internship director to receive permission to register. No requests to register after the Schedule Adjustment Period will be granted.
**Prerequisite:** Must have earned a grade of C- or better in JOUR201.
**Restriction:** Must be a major in the JOUR-Philip Merrill College of Journalism.
**Credit Only Granted for:** JOUR326, JOUR366, or JOUR396.

**JOUR398 Independent Study (1-3 Credits)**
Individual projects in journalism.
**Repeatable to:** 3 credits.

**JOUR399 Supervised Internship (1 Credit)**
Supervised news internship experience; relation of academic training to professional experience.
**Prerequisite:** Minimum grade of C- in JOUR320 and JOUR360.
**Repeatable to:** 3 credits if content differs.
**Credit Only Granted for:** JOUR326, JOUR366, JOUR396, or JOUR399.

**JOUR400 Media Law (3 Credits)**
Legal rights and constraints of mass media; libel, privacy, copyright, monopoly, contempt, and other aspects of the law applied to mass communication. Previous study of the law not required.
**Prerequisite:** JOUR320, JOUR360, or JOUR501.
**Restriction:** Junior standing or higher.

**JOUR402 Journalism Law and Ethics (3 Credits)**
An examination of the legal rights and ethical problems and constraints of mass media, including libel, privacy, copyright, monopoly and contempt.
**Prerequisite:** JOUR201.
**Credit Only Granted for:** JOUR402 OR JOUR400 and JOUR300.

**JOUR405 Breaking News With Numbers: Statistics for Journalists (3 Credits)**
Common statistical tools, software and data visualization techniques will be used to allow students to analyze data and solve problems relevant to reporting and writing about politics, sports, criminal justice, business and other fields.
**Prerequisite:** Minimum grade of C- in JOUR201; and (MATH107 or MATH110; or must have completed a higher level math course).
**Restriction:** Must be in a major in JOUR-Philip Merrill College of Journalism.

**JOUR434 Salzburg Seminar: Global Media Literacy (3 Credits)**
An advanced analysis of the information, values underlying messages conveyed via television, newspapers, the Internet, magazines, radio and film from a cross-cultural perspective. Examines the accuracy of messages and explores how distinctive global media shape views of politics culture and society with nations, across regions and internationally.
**Restriction:** Must be in Salzburg Academy program. Jointly offered with JOUR734.
**Credit Only Granted for:** JOUR434 or JOUR734.

**JOUR435 Salzburg Seminar: Global Change, Global Cooperation (3 Credits)**
Practical and theoretical examination of a global problem (or problems) of contemporary importance from a cross-cultural, perspective. Analytical framework used to examine how media shape global problems, events and/or issues regionally.
**Restriction:** Must be in Salzburg Academy program. Jointly offered with JOUR735.
**Credit Only Granted for:** JOUR435 or JOUR735.

**JOUR443 Sports, Society, Culture and the Media (3 Credits)**
Designed to explore how sports, society, culture and the media critically relate to each other and the vast audiences of fans and interested parties. Students will study how journalists impact change; how sports shape culture; and how sports are seen throughout the world. College sports, children and sports, the business of sports, the history of sports media and the future of sports in society will be studied as well.
**Restriction:** Junior standing or higher.
**Credit Only Granted for:** JOUR459G or JOUR443.
**Formerly:** JOUR459G.

**JOUR447 Sports, Protest and the Media (3 Credits)**
Addresses why activists, whether athletes or not, have long commanded ceremonial and ritualistic games to promote a cause or take a stand. It examines the important role of media as collectors, editors, interpreters and disseminators of information or news about athletic competitions, athletes and political pronouncements revolving around athletic events and their participants.
**Credit Only Granted for:** JOUR447 or JOUR458M.
**Formerly:** JOUR458M.

**JOUR451 Advertising and Society (3 Credits)**
Advertising as an institution with manifest economic purposes and latent social effects. Influences of advertising on people, and related issues of ethics and social responsibility.
**Restriction:** Junior standing or higher.

**JOUR452 Women in the Media (3 Credits)**
Participation and portrayal of women in the mass media from colonial to contemporary times.
**Cross-listed with:** WGSS452.
**Credit Only Granted for:** JOUR452, WMST452 or WGSS452.
**Formerly:** WMST 452.

**JOUR453 Media Coverage of Diversity (3 Credits)**
Analysis of media coverage of issues relating to diversity in the United States, with special attention to race, ethnicity, class, gender, sexual orientation and religious affiliation.
**Restriction:** Junior standing or higher.

**JOUR455 Media Entrepreneurship (3 Credits)**
Basic business and entrepreneurship concepts will be covered and will explore how technology is transforming the business of media. Students develop and pitch ideas for media businesses, learn startup basics, do exercises in Internet advertising and business plan analysis, use social networks and other digital communication tools, and perform other hands-on exercises in business development and presentation.

**JOUR456 Literature in Journalism (3 Credits)**
From Truman Capote's In Cold Blood to Mark Bowden's Black Hawk Down, students will examine how literary works can help writers approach a subject in a different way than more traditional forms of journalism, including the advantages and limitations of the style.
**Credit Only Granted for:** JOUR456 or JOUR673.

**JOUR458 Special Topics in Journalism (3 Credits)**
Issues of special concerns and current interest.
**Repeatable to:** 6 credits if content differs.

**JOUR459 Special Topics in Journalism (1-3 Credits)**
Issues of special concern and current interest. Open to all students.
**Repeatable to:** 6 credits if content differs.

**JOUR471 Follow the Money: Reporting on Business (3 Credits)**
Business and economics reporting is one of the strongest sectors of journalism with lucrative employment opportunities. This class, designed for journalism and non-journalism majors, introduces students to the main economic and business themes that dominate news coverage. Topics will include: corporate money and power in Washington, the ups and downs of the stock market, rising income inequality, the immigration crisis, why we have a trade war with China and technology disruptors. This class will be helpful to students who want to enhance their career opportunities by understanding how the economy works, why globalization is important and how the biggest corporations--including technology companies--have such a big influence on the way we live.
**Prerequisite:** Must have completed a university statistics course.
**Restriction:** By permission of the College of Journalism.
**Credit Only Granted for:** JOUR479C or JOUR471.
**Formerly:** JOUR479C.

**JOUR472 Data Journalism (3 Credits)**
A practical, skills-based course in the basics of modern data journalism, data literacy and data storytelling. Students will learn to use data visualization, data analysis and other data-driven reporting techniques.
**Prerequisite:** JOUR320 or JOUR360.
**Jointly offered with:** JOUR772.
**Credit Only Granted for:** JOUR472 or JOUR772.

**JOUR473 Computational Journalism (3 Credits)**
Designed to teach the application of computational methods in journalism and reporting. The methods include natural language processing, visualization, and web data mining. The course will also cover the necessity and impact of journalistic ethics in designing computation solutions.
**Prerequisite:** Permission of the Philip Merrill College of Journalism.
**Cross-listed with:** INST403.
**Jointly offered with:** JOUR773.
**Credit Only Granted for:** JOUR479V, JOUR473, INST408I or INST403.
**Formerly:** JOUR479V and INST408I.

**JOUR475 Understanding Audiences and Analytics (3 Credits)**
As journalism evolves, it may be more important than ever to understand what were once simply called "audiences" -- who they are, how they consume news, and what that engagement means for them and for society. Students will learn to think critically about news audiences and contemporary issues in audience research.
**Prerequisite:** Student must have completed a university statistics course.
**Credit Only Granted for:** JOUR479O or JOUR475.
**Formerly:** JOUR479O.

**JOUR476 Researching Emerging Media in Journalism: Past, Present and Future (3 Credits)**
Students will examine developments billed as innovative in the current technology-laden news ecology -- such as social media, mobile reporting and virtual reality -- and the blurring of lines between hard news, informed opinion and advocacy. While questions about the future cannot be answered with any certainty, an exploration of the past allows us to see what happened when new technologies, information systems and practices appeared as possible tools for use by journalists and the communities they served. Students will learn to use resources for researching emerging media, including UMD library databases and open access sources. The course will include presentations by the instructor, discussions, field trips, in-class exercises and student presentations. Each student will engage in a research project to understand the experience of emerging media in a decade between 1820 and 1980. Students will also write an essay contemplating current trends and the future of emerging media.
**Prerequisite:** Must have completed a university statistics course.

**JOUR479 Special Topics in Data Gathering and Analysis (1-3 Credits)**
Special research topics for reporting and writing.
**Repeatable to:** 3 credits.

**JOUR480 Capstone Colloquium: The Business of News (1 Credit)**
Students will learn the basic news business concepts and examine how revenue and cost structures for media businesses are evolving in new directions. Topics include basic principles and concepts that drive media businesses in the Internet age, including revenue sources, dynamics of online advertising and subscriptions, mobile media strategies, user metrics, engaging audiences, and market dynamics.
**Restriction:** Must be in a major in JOUR-Philip Merrill College of Journalism; and junior standing or higher; and permission of JOUR-Philip Merrill College of Journalism.

# JWST - Jewish Studies

**JWST141 American Jewish Experience (3 Credits)**
History of the Jews in America from Colonial times to the present. Emphasis on the waves of migration from Germany and Eastern Europe; the changing nature of the American Jewish community and its participation in American social, economic, and political life.
**Cross-listed with:** HIST106.
**Credit Only Granted for:** HIST106 or JWST141.

**JWST171 Is Judaism a Religion? (3 Credits)**
Jewish identity can be framed in terms of ethnicity, culture, and religious practice, but also in terms of more contemporary social constructions including social action, political engagement, and intellectual pursuit. In the context of such diverse social and individual frames, what does it mean to identify Judaism as a religion? Attention to Jewish society in historical and global perspective will provide a backdrop for a particular focus on contemporary Jews in the United States and Israel.
**Cross-listed with:** RELS171.
**Credit Only Granted for:** JWST171 or RELS171.

**JWST187 God, Land, Power, and the People: Moral Issues in the Jewish Historical Experience (3 Credits)**
Examines the complicated relationship between theology, nationalism, sovereignty, and the ethical exercise of social control using case studies drawn from the Jewish historical experience. The universal and age-old issues implicit in the exercise of power have gained special moral force for Jews with the creation of the State of Israel, a Jewish and a democratic state with substantial non-Jewish minorities and hundreds of thousands of non-citizen subjects. Can these be reconciled? Jewish efforts over the ages and in recent times to define justice provide concrete examples through which to examine and discuss crucial abstract principles.
**Cross-listed with:** HIST187.
**Credit Only Granted for:** HIST187 or JWST187.

**JWST219 Special Topics in Jewish Studies (3 Credits)**
**Repeatable to:** 9 credits if content differs.

**JWST225 Religions of the Ancient Near East (3 Credits)**
Introduction to ancient Near Eastern religious systems and mythology, from the third millennium BCE through the fourth century BCE. Particular emphasis on Mesopotamia and ancient Israel.
**Cross-listed with:** RELS225, HIST219I.
**Credit Only Granted for:** JWST225, HIST219I, RELS225, or RELS219A.
**Formerly:** RELS219A.

**JWST230 Inventing Traditions: The Making of Rabbinic Judaism (3 Credits)**
Introduces the dramatic literary and cultural (as well as political and demographic) innovations that reshaped Judaism in late antiquity. Examines the fundamental works and genres of rabbinic literature and the religious movement that produced them. Special emphasis on the rabbinic uses of "tradition" to enhance authority and legitimacy, and to foster group identity.
**Cross-listed with:** HIST281, RELS230.
**Credit Only Granted for:** HIST281, JWST230, RELS219C or RELS230.
**Formerly:** RELS219C.

**JWST231 Jewish Texts and Cultures of the Second Temple Period (3 Credits)**
An introduction to the literature, history, and culture of Jews in the period between the sixth century BCE and the second century CE. Special topics may include the rise of the formation of the biblical canon, scriptural interpretation, sectarian and revolutionary movements, and growth of the diaspora.
**Cross-listed with:** HIST291.
**Credit Only Granted for:** HIST291 or JWST231.

**JWST233 Why the Jews? Historical and Cultural Investigations (3 Credits)**
Examines the history and culture of the Jews from the thirteenth century BCE/BC to the present through an examination of significant themes or problems (such as "religion" or "diaspora") that shape our understanding of the Jewish people. A primary focus in the course will be on texts, artifacts, and other cultural products by Jews and others that illustrate the history of the Jews help understand their cultural heritage.
**Restriction:** Must not have completed HIST282, HIST283, JWST234, or JWST235. Cross-listed with HIST287.
**Credit Only Granted for:** JWST233 or HIST287.

**JWST235 History of the Jewish People II (3 Credits)**
Political, economic, social and cultural development within Jewish history from the end of the Middle Ages to the present. Special attention to the twentieth century developments including the Nazi Holocaust and its aftermath, the Zionist movement and the creation of the State of Israel, and the rise of the contemporary American-Jewish community.
**Credit Only Granted for:** HIST283, HIST283H, JWST235, or JWST235H.

**JWST250 Fundamental Concepts of Judaism (3 Credits)**
A conceptional introduction to Judaism, analyzing its fundamental concepts from both analytical and historical perspectives. Discussion of "normative" Judaism as well as other conceptions of Judaism. Topics include: God, the Jewish people, authority, ethics, the sacred and the profane, particularism and universalism.
**Cross-listed with:** PHIL234, RELS250.
**Credit Only Granted for:** JWST250, PHIL234, or RELS250.

**JWST256 Zionism and Sexual Revolution (3 Credits)**
A study of the changes within European Jewish communities that influenced the development of particular fantasies about and representations of gender, love, and sex in Palestine and Israel. We will investigate the broader intellectual and cultural contexts needed to understand the gender and sexual revolutions of the 19th and 20th centuries, and will examine how European and, later, Israeli Jews adopted and adapted these ideas and cultural forms. We will closely analyze a variety of texts (stories, plays, photographs, and films) and will consider the relationship between ideology and aesthetics.
**Cross-listed with:** ISRL256.
**Credit Only Granted for:** ISRL249N, JWST219G, ISRL256, or JWST256.
**Formerly:** ISRL249N or JWST219G.

**JWST262 Introduction to the Hebrew Bible/Old Testament (3 Credits)**
Origins of the Hebrew Bible (Old Testament), with attention to literary formations, archaeology, and social-political settings. Explorations of major questions, including who wrote the Bible, and when; relationships of the biblical tradition to the mythology and religious structures of ancient Israel's near eastern neighbors; and dynamics of politics, religious leadership, and law.
**Cross-listed with:** ENGL262, HEBR298B.
**Credit Only Granted for:** JWST262, HEBR298B, or ENGL262.

**JWST269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**JWST272 Diversify and Multiply: Jewish Culture and the Production of an Identity (3 Credits)**
Provides students with a unique exploration of cultural products produced by a diverse array of Jewish creators of literature, comedy and film. The texts, films, and performing arts touch on the central social, economic, and cultural issues of Jews during the ages, and up to the 21st century. This course will explore Jewish creativity throughout history, as well as the Jewish encounter with modernity as a whole. We will be diving into prominent creators such as Tiffany Haddish, Larry David, Sholem Aleichem, Adam Sandler, S. Y. Abramovitsch, Judd Apatow, Philip Roth, Amy Schumer, I. B. Singer, Ben Stiller, Franz Kafka, Dan Levy, and others. Examining their creations will open a window to the diverse methods of construction of modern Jewish identities.
**Cross-listed with:** CMLT242.
**Credit Only Granted for:** JWST272, CMLT242, or ISRL249G.

**JWST274 Jerusalem in Antiquity: The History of Sacred Space in a Holy City (3 Credits)**
Examines the complex history of Jerusalem's status as a holy city, with a focus on constructions of sacred space in Judaism, Christianity, and Islam.
**Cross-listed with:** RELS274.
**Credit Only Granted for:** JWST274, RELS274, JWST289J or RELS289J.
**Formerly:** JWST289J, RELS289J.

**JWST275 Urban Dreams and Nightmares: The Jewish Experience of Cities (3 Credits)**
Cities give expression to man's power while they highlight human limitations. It is urban social diversity that makes great wealth and thriving culture possible, but it also fixes discrimination behind walls constructed from paper and stone. Nations make cities symbols of the sacred and the glorious, while they ignore the poverty and social alienation that city life breeds. Jews, intensively urbanized for millennia, provide a special vantage point from which to study the beauty and the tragedy implicit in city-building. Our sources will include the Bible, poems, plays and novels but also US Supreme Court rulings and news of riots in Israel. We will survey how Jews have shaped, and been shaped by, the urban challenge over time and space.
**Cross-listed with:** HIST286.
**Credit Only Granted for:** HIST286 or JWST275.

**JWST281 Yiddish I (3 Credits)**
Introduction to the Yiddish language, with emphasis on speaking, reading, and writing skills. Students will also learn the history of the language, its significance to Jewish culture, its origins and basic structure.
**Cross-listed with:** GERS141.
**Credit Only Granted for:** JWST281, GERM148Y or GERS141.

**JWST282 Elementary Yiddish II (3 Credits)**
Continuation of JWST281.
**Prerequisite:** JWST281; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies.
**Cross-listed with:** GERS142.
**Credit Only Granted for:** GERM149Z, GERS142 or JWST282.

**JWST285 Jewish Languages in America (3 Credits)**
With a particular focus on language minority intra-group relationships -- the convergences, divergences, feelings of solidarity and tensions of difference within the group--this course will examine the history, current functional use and identity implications of Jewish languages in the United States.
**Cross-listed with:** HEBR298O.
**Credit Only Granted for:** JWST285, JWST219O or HEBR298O.
**Formerly:** JWST219O.

**JWST289 New Explorations in Jewish Studies (3 Credits)**
Investigation of critical and innovative responses in Jewish Studies. Although the topic will vary, the course will encourage intellectual exploration by students of fundamental problems and critical methods.

**JWST289E Civil Discourse or Urban Riot: Why Cities Don't (Often) Explode (3 Credits)**
An examination of the mechanisms that promote peaceful co-existence in urban societies and a discussion of how and why city streets sometimes become violent.
**Cross-listed with:** HIST135.
**Credit Only Granted for:** HIST135 or JWST289E.

**JWST290 Can Jews be Arabs? Identity and Crisis for the Jews of Arab Lands in Modern Times (3 Credits)**
For centuries, Jews inhabited the Islamic lands of the Middle East and North Africa. Their population has dropped from nearly one million a century ago to several tens of thousands today, mostly in Turkey and Iran. The vibrant and ancient Jewish communities of Iraq, Egypt, Syria, Morocco, Algeria, Libya, and several other countries were practically gone by 1970. One popular explanation for this exodus is that an "age-old schism between Jews and Muslims," in the words of the prominent historian Martin Gilbert, drove Jewish men and women to leave their historic homelands in the years following the first Arab-Israeli war of 1948. However, recent research into these communities offers a more complex picture of their lives in Islamic lands in the 19th and 20th centuries and subsequent departure.
**Cross-listed with:** HIST290.
**Credit Only Granted for:** JWST289A, HIST219C or HIST290.

**JWST298 Elementary/Introductory Language Module for Jewish Studies (1-3 Credits)**
A supplementary language module for students enrolled in designated Jewish Studies classes. Language of instruction English, texts in original language.
**Prerequisite:** HEBR212 or JWST282; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies.
**Repeatable to:** 9 credits if content differs.

**JWST299 Independent Study in Jewish Studies (1-3 Credits)**
This lower-level independent study allows students in to work closely with a Jewish Studies faculty member of their choice, pending the prior approval of the faculty member. In this independent study, students will focus on a topic specific to Jewish Studies.
**Prerequisite:** Permission of ARHU-Meyerhoff Program & Center for Jewish Studies.
**Repeatable to:** 6 credits if content differs.

**JWST304 Critical Approaches to Israeli Culture (3 Credits)**
An examination of the intersections of literature, society, philosophy, and politics in the making of modern Israeli culture. Special attention will be paid to the Zionist emphasis on making "new" Jews and its implications when expressed in literature and society.
**Formerly:** JWST419B and JWST419K.

**JWST314 Pedagogy and Instruction in the Hebrew Classroom (3 Credits)**
An exploration of applied linguistic theory and issues in Hebrew teaching to current and future Hebrew and Judaic studies teachers. First and second language acquisition theories, past and present language teaching methodologies, effective approaches to teaching and testing in the four skill areas (listening, speaking, reading, and writing), as well as knowledge of the role of identity, context, and affective factors in Hebrew language learning. Taught in English.
**Credit Only Granted for:** JWST314, JWST419F, or JWST429C.
**Formerly:** JWST419F and JWST429C.

**JWST315 Culture and Identity in Jewish and Hebrew Education (3 Credits)**
An in-depth examination of heterogeneous natures of various language learning settings. Social and psychological theories of second language and identity acquisition, anomie and language/identity attrition, and conflicts of class, religion, ethnicity, and power relations that affect Jewish and Hebrew education. Taught in English.
**Credit Only Granted for:** JWST429P or JWST315.
**Formerly:** JWST429P.

**JWST319 Special Topics in Jewish Studies (1-6 Credits)**
Topics in Jewish Studies.
**Repeatable to:** 12 credits if content differs.

**JWST319D Mizrahi Identity in Israel (3 Credits)**
It is impossible to understand Israeli society today without examining the Mizrahi experience. Despite the common misconception that Israel is predominantly made up of Jews from European origin, the fact of the matter is that Jews of Mizrahi origin, whose parents and grandparents immigrated to Israel from the Middle East and North Africa, represent a major part of the Israeli population. Moreover, Ashkenazi-Mizrahi relations continue to be a major source of tension in Israeli politics, and issues of race continue to come up on social media and polarize the Israeli society. This course brings to light narratives of Mizrahi identity in Israel and explores the trajectory of the Mizrahi struggle for equality and against racism through its various milestones: the 1959 Wadi Salib Revolt, the Black Panthers Movement in the 1970s, the emergence of the Israeli Sephardi-Orthodox party Shas, and the new wave of Mizrahi activism in the 21st century.
**Cross-listed with:** ISRL330, HIST377.
**Credit Only Granted for:** JWST319D, HIST377, HIST329Z, ISRL329M, or ISRL330.
**Formerly:** ISRL329M.

**JWST319P Arts & Humanities in Social Innovation, Change, and Justice: Do Good Now (3 Credits)**
The course serves as the core course for the Arts-and-Humanities track in PLCY's minor in "Nonprofit Leadership and Social Innovation." Students will be introduced to the role that the Arts and Humanities can play in social innovation and social change, while exploring various mechanisms for achieving impact with a focus on advancing social justice, equity and systems change. This course deepens understandings of nonprofit leadership, entrepreneurship and social innovation by guiding students through the creation and implementation of social change projects and ventures of their choice.
**Cross-listed with:** ARHU380.
**Credit Only Granted for:** ARHU380, BSOS388B, JWST319P, or PLCY388D.

**JWST319Y Archaeological Methods and Practice (3 Credits)**
A team-taught, interdisciplinary course discussing theories, methods, and ethical issues in the practice of archaeology.
**Prerequisite:** ANTH240, ARTH200, or CLAS180.
**Cross-listed with:** ANTH305, ARTH305, CLAS305.
**Credit Only Granted for:** ANTH305, ARTH305, CLAS305, or JWST319Y.

**JWST324 Biblical History and Culture (3 Credits)**
Study of the political, social, and religious development of the Jewish nation from its inception to its return from exile in Babylonia around 536 C.E. Focus on biblical texts, archeological finds, and source materials from neighboring cultures to reconstruct political history and the development of religious concepts.
**Cross-listed with:** HIST321.
**Credit Only Granted for:** HIST321, or JWST324.

**JWST325 Jews and Judaism in Antiquity I: Sixth Century BCE through the First Century CE (3 Credits)**
Political, social, and religious history of the Jews from the Persian period to the Judean revolt of 66-70 CE. Special attention to the rise of sectarian and revolutionary movements.
**Cross-listed with:** HIST370.
**Credit Only Granted for:** HIST370 or JWST325.

**JWST326 Jews and Judaism in Antiquity II: First through Seventh Century (3 Credits)**
Political, social, and religious history of the Jews from the destruction of the Jerusalem Temple in 70 CE to the Muslim conquests. Special attention to the political transformations in Judaism under late Roman Christianity, and the rise of the Rabbinic movement.
**Recommended:** HIST370.
**Cross-listed with:** HIST371.
**Credit Only Granted for:** HIST371 or JWST326.

**JWST331 Early Christianity: Jesus to Constantine (3 Credits)**
Social and religious history of early Christianity from its origin in the first century to the reign of Constantine.
**Cross-listed with:** HIST320.
**Credit Only Granted for:** HIST320 or JWST331.

**JWST332 The Israeli Settler Movement: The Road to One State? (3 Credits)**
Explores the Israeli settler movement over the last four decades, from its position on the fringes of Israeli society in the 1970s and 1980s to its rise to prominence in Israeli politics today. Topics will include the history of the Israeli settlement project in the West Bank, the emergence of Gush Emunim and its ideological foundations in Jewish messianism, its violent offshoots, and the influence of the settler movement on the Israeli political system. Study of these topics illuminates some of the most important driving forces of modern history such as nationalism, religious fundamentalism, colonialism and the ability of a determined minority to influence a country's policies.
**Cross-listed with:** HIST381, ISRL344.
**Credit Only Granted for:** HIST329G, HIST381, ISRL329G, ISRL344, JWST332 or JWST319N.
**Formerly:** JWST319N.

**JWST333 Martyrs & Merchants, Lawyers & Mystics, Magicians & Messiahs: Jews Between Medieval and Modern Times (3 Credits)**
In an era marked by traumatic expulsions, inquisitorial barbarism, and enforced ghettoization, Jews reinvented themselves. Through their international networks of trade, Jews learned how to negotiate with kings and to govern new, large urban communities in new lands. They took advantage of the printing press to reorganize their literary traditions of law, biblical studies and mysticism, and created new hierarchies of religious status. And they flocked to hear new kinds of enthusiast preachers, celebrating the man they saw as the messiah finally come. We will together explore the contradictory forces that ultimately gave birth to the modern Jew.
**Recommended:** HIST287 or JWST233; HIST 332; .
**Cross-listed with:** HIST373.
**Credit Only Granted for:** JWST333 or HIST373.

**JWST334 Mizrahi Identity in Israel (3 Credits)**
It is impossible to understand Israeli society today without examining the Mizrahi experience. Despite the common misconception that Israel is predominantly made up of Jews from European origin, the fact of the matter is that Jews of Mizrahi origin, whose parents and grandparents immigrated to Israel from the Middle East and North Africa, represent a major part of the Israeli population. Moreover, Ashkenazi-Mizrahi relations continue to be a major source of tension in Israeli politics, and issues of race continue to come up on social media and polarize the Israeli society. This course brings to light narratives of Mizrahi identity in Israel and explores the trajectory of the Mizrahi struggle for equality and against racism through its various milestones: the 1959 Wadi Salib Revolt, the Black Panthers Movement in the 1970s, the emergence of the Israeli Sephardi-Orthodox party Shas, and the new wave of Mizrahi activism in the 21st century.
**Cross-listed with:** ISRL330, HIST377.
**Credit Only Granted for:** JWST319D, JWST334, HIST377, HIST329Z, ISRL329M, or ISRL330.
**Formerly:** ISRL329M.

**JWST341 American Jewish Literature (3 Credits)**
An exploration of the role played by literature in the development of American Jewish ethnic identity. Primary materials include essays, poetry, plays, short stories, novels, films and music.Cross-listed with ENGL331.
**Credit Only Granted for:** ENGL331 or JWST341.

**JWST344 Modern Jewish History II: World Jewry Since 1870 (3 Credits)**
Social, political, economic, and cultural change in the Jewish world since 1870. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 19th Century to the present.Cross-listed with HIST375.
**Credit Only Granted for:** HIST375 or JWST344.

**JWST345 The Holocaust of European Jewry (3 Credits)**
Roots of Nazi Jewish policy in the 1930's and during World War II: the process of destruction and the implementation of the "final solution of the Jewish problem" in Europe, and the responses made by the Jews to their concentration and annihilation.
**Cross-listed with:** HIST307.
**Credit Only Granted for:** HIST307 or JWST345.

**JWST346 Representing the Holocaust (3 Credits)**
Different perspectives on how the Holocaust should be represented. Examination of a wide range of texts including fiction, memoirs, critical essays, poems and films in different languages (in translation). Emphasis on the international and comparative nature of Holocaust literary studies and investigation into the propriety of literary representation of historical catastrophe. Consideration of our own role as readers serving as witnesses to an event that has marked itself indelibly in the aesthetic history of the twentieth century.
**Credit Only Granted for:** ENGL379J, JWST419I, ENGL332, or JWST346.
**Formerly:** ENGL379J and JWST419I.

**JWST347 Tradition and Change: Jewish Religion in the Modern World (3 Credits)**
An exploration of the history of the different modern Jewish religious movements that developed in Europe, starting with messianic movements and ending with Reform and Orthodoxy. Emphasis will be placed on the influence of the academic study of Judaism on the development of modern Jewish religious ideologies and practices.
**Cross-listed with:** HIST429X, RELS347.
**Credit Only Granted for:** RELS347, JWST347, HIST429X, or RELS419R.
**Formerly:** RELS419R.

**JWST369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**JWST370 Before the Holocaust: The Golden Age of Eastern European Jewry (3 Credits)**
An exploration of the history of the Jews of Eastern Europe from the period of the Polish Lithuanian Commonwealth until the Holocaust. Topics to be covered include religious, political, social, and cultural transformation of Jewish life in Eastern Europe in the context of the general political changes in the area.
**Cross-listed with:** HIST419Q.
**Credit Only Granted for:** JWST419E, JWST370, or HIST419Q.
**Formerly:** JWST419E.

**JWST372 Jewry of Muscle: Zionism and Jewish Masculinity (3 Credits)**
Part of the Zionist cultural project involved creating a new Jewish masculinity that would replace the diasporic "sissy Jew" with a strong, healthy new "Jewry of Muscle." Using literary and cinematic sources, we will analyze how these Zionist and Israeli cultural productions served to build (and sometimes undermine) this new model of Jewish masculinity.
**Cross-listed with:** ISRL372.
**Credit Only Granted for:** JWST319K, ISRL329K, JWST372 or ISRL372.
**Formerly:** JWST319K or ISRL329K.

**JWST373 Sexuality in Jewish Literature and Culture (3 Credits)**
Provides students with a unique exploration of texts and films created by various Jewish authors and filmmakers, and the way they dealt with questions of gender and sexuality. The texts and films touch on the central social, economic, and cultural issues of European, American, and Israeli Jewry during the middle ages, and up to the 19th, 20th and 21st centuries. It will explore how the categories of gender and sexuality changed and were represented in rich and contrasting ways according to the authors' social norms and ideological convictions. Focusing on sexuality and gender in Jewish culture can help us better understand Jewish social norms, creativity, and history, in particular modern Jewish literatures, visual medias, and the Jewish encounter with modernity as a whole. We will be reading prominent writers and filmmakers such as Sholem Aleichem, Philip Roth, S. Y., Jill Soloway, Abramovitsch, Todd Solondz, Celia Dropkin, I. B. Singer, Sholem Ash, Boaz Davidson, Judd Apatow, Tseruyah Shalev, and others. This is a discussion-based course; however, it also emphasizes developing the skills of analytical and abstract thinking and critical writing about texts and other cultural productions. This course does not require proficiency of any foreign language or any specific historical knowledge.
**Credit Only Granted for:** JWST319L or JWST373.
**Formerly:** JWST319L.

**JWST375 Jews and Representations of Race (3 Credits)**
Attention to the evolution of Western concepts of "race" from late medieval to modern times requires addressing the meaning of the term "race." How did constructions of Jewish "racial" identities fit into this broader discussion? As Christian Europe's primary minority for centuries, "the Jews" provide evidence for constructions of race as a means of grouping populations culturally and materially. How did Jews interact with the racial discourse of diverse time periods, and how did they negotiate their political realities by both adopting and challenging aspects of the rhetoric of antisemitism as well as the rhetoric of "whiteness" versus "blackness"?
**Cross-listed with:** ISRL375.
**Credit Only Granted for:** ISRL375, JWST375, ISRL349Z, or JWST319M.
**Formerly:** ISRL349Z or JWST319M.

**JWST386 Experiential Learning in Jewish Studies (3 Credits)**
The Jewish Studies Program's internship program. Pre-professional experience in research, analysis, and writing related to Jewish Studies in a variety of work settings.
**Prerequisite:** Permission of ARHU-Meyerhoff Program & Center for Jewish Studies.
**Restriction:** Junior standing or higher.

**JWST408 Honors Seminar in Jewish Studies (3 Credits)**
An in-depth exploration of a theme in Jewish history, literature, culture or thought. Course subject and readings will vary from year to year, but will generally cut across periods, locations, or disciplines. Students are expected to engage the course material critically and to use the seminar as an opportunity to develop an independent research agenda.
**Prerequisite:** Permission of ARHU-Meyerhoff Program & Center for Jewish Studies.
**Restriction:** Junior standing or higher.

**JWST409 Research Seminar in Jewish Studies (3-4 Credits)**
A capstone course for Jewish Studies. Guides students through advanced source material and subject matter, research skills, and presentation techniques. A substantive paper based on independent research and analysis is one expected outcome.
**Prerequisite:** Must have completed two upper-level courses in an appropriate area of Jewish Studies; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies.
**Repeatable to:** 9 credits if content differs.
**Formerly:** JWST309.

**JWST418 Honors Thesis Research in Jewish Studies (3-6 Credits)**
Guided research on a thesis under the supervision of the Jewish Studies faculty.
**Repeatable to:** 6 credits if content differs.

**JWST419 Special Topics in Jewish Studies (3 Credits)**
**Repeatable to:** 9 credits if content differs.

**JWST429 Advanced Topics in Jewish Studies (3-4 Credits)**
Special topics at an advanced level for Jewish Studies. Primarily intended for majors and graduate students.
**Repeatable to:** 12 credits if content differs.

**JWST430 Dead Sea Scrolls (3 Credits)**
A study of the Dead Sea Scrolls in their ancient and modern settings, and in terms of contemporary scholarly interpretations of their meaning. Interpretations of the historical significance of these documents, their connections to ancient Jewish sectarian movements, and their implications for our understanding of Judaism, Christianity, and the history of the Bible.
**Prerequisite:** Must have completed one JWST course or one RELS course; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Cross-listed with RELS430.
**Credit Only Granted for:** JWST430 or RELS430.

**JWST432 Jews in Medieval Times 1000-1450 (3 Credits)**
Social and cultural life of Jewish communities spread throughout Islam and Christendom. Major topics include the Gaonate, kehila organizations, legal, rationalist, and mystical thought, and the context of rising animosity against Jews linked to the Crusades and changing Church doctrines.
**Recommended:** HIST282, HIST330, HIST331, or JWST234.
**Cross-listed with:** HIST476.
**Credit Only Granted for:** HIST476 or JWST432.

**JWST452 The Golden Age of Jewish Philosophy (3 Credits)**
Jewish philosophy from Maimonides in the 12th century to the expulsion of the Jews from Spain at the end of the 15th Century. Topics include the limitations of human knowledge, creation of the world, foreknowledge and free will, and the existence of God.
**Prerequisite:** 3 credits in PHIL courses; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies; or permission of ARHU-Philosophy department.
**Cross-listed with:** PHIL417.
**Credit Only Granted for:** JWST452 or PHIL417.

**JWST459 Readings in Medieval Hebrew (3-4 Credits)**
Readings and analysis of Hebrew texts and literature from the Middle Ages. Language of instruction in English; all texts in Hebrew.
**Repeatable to:** 9 credits if content differs.
**Credit Only Granted for:** JWST459 or JWST466.
**Formerly:** JWST466.

**JWST468 Readings in the Hebrew Bible (3-4 Credits)**
Readings in the Hebrew text of the Bible. Emphasis in close reading, grammar analysis, and modern interpretations of the Bible. Language of instruction English; all texts in Hebrew.
**Prerequisite:** HEBR313; or permission of instructor.
**Repeatable to:** 9 credits if content differs.
**Formerly:** HEBR441 and HEBR442.

**JWST469 Readings in Rabbinic Hebrew (3-4 Credits)**
Readings in classical rabbinic texts and related corpora. Emphasis on grammar and reading skills as well as critical analysis of the material. Language of instruction: English; all texts in original language.
**Prerequisite:** HEBR313; or permission of instructor.
**Repeatable to:** 9 credits if content differs.

**JWST471 Modern Hebrew Literature in Translation (3 Credits)**
An exploration of modern Hebrew prose, poetry, and literary essays written from the 1880s through the present in Europe, Palestine, and Israel. An investigation of the challenges confronting authors such as Mendele Mokher Sforim, Avraham Mapu, Chaim Nahman Bialik, Dvorah Baron, S.Y. Agnon, and David Fogel as they tried to create a contemporary secular literature out of an ancient sacred language. All texts in English translation.

**JWST478 Readings in Modern Hebrew (3 Credits)**
Variable topics in Modern Hebrew Literature.
**Prerequisite:** HEBR313; or permission of instructor.
**Restriction:** Junior standing or higher.
**Repeatable to:** 12 credits if content differs.

**JWST491 Judaism and the Construction of Gender (3 Credits)**
The study of Jewish culture, religious practice, communal authority, and literature through the frame of such critical categories of analysis as gender, sexuality, masculinity, power, ethics, and the feminine.
**Prerequisite:** 1 course in JWST; or 1 course in LGBT; or 1 course in WMST or WGSS.
**Cross-listed with:** WGSS491.
**Credit Only Granted for:** JWST491, WMST491 or WGSS491.
**Formerly:** WMST491.

**JWST492 Sex, Gender, and Jewish Identity (3 Credits)**
An exploration of Jewish embodiment, including dynamics related to biological sex, culturally-framed gender, and sexuality. Topics of discussion may include transgender and intersex Jews, stereotypes and gender performance, modesty, genetics, and body alteration. Focus is on contemporary Jewish culture, framed within the larger historical and textual tradition.
**Prerequisite:** 1 course in WGSS; or 1 course in JWST; or 1 course in LGBT; or permission of instructor.
**Cross-listed with:** LGBT448W, WGSS492.
**Credit Only Granted for:** JWST492, JWST409G, LGBT448W, WMST498W or WGSS492.
**Formerly:** WMST498W and JWST409G.

**JWST498 Advanced Language Module for Jewish Studies (1-3 Credits)**
A supplementary language module for students enrolled in designated Jewish Studies classes. Language of instruction English, texts in original language.
**Prerequisite:** HEBR212 or JWST282; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies.

**JWST499 Independent Study in Jewish Studies (1-3 Credits)**
**Prerequisite:** Permission of ARHU-Meyerhoff Program & Center for Jewish Studies.
**Repeatable to:** 6 credits if content differs.

# KNES - Kinesiology

**KNES151 Professional Lifeguard Training (1 Credit)**
Lifeguarding will prepare students to respond to emergencies, promote safety in aquatic environments, and may even appeal to a future employer looking for a proven leader. Throughout the course, students will work towards American Red Cross certification requirements, including lifeguarding, CPR/AED, and First Aid. This class will also place an emphasis on professionalism, communication, teamwork, problem solving, and emergency response.
**Recommended:** Intermediate swimming skills, confidence in deep water.
**Credit Only Granted for:** KNES151 or KNES154W.
**Formerly:** KNES154W.
**Additional Information:** Students may obtain a lifeguard certificate/credential by passing a separate exam and skills test from the certifying organization. This is optional, and not required to earn course credit in the KNES151 course.

**KNES156 Pickleball (1 Credit)**
This is a co-ed physical activity course for pickleball.

**KNES200 Introduction to Kinesiology (3 Credits)**
Kinesiology is the interdisciplinary study of physical activity that includes seven sub-disciplines: 1) exercise physiology; 2) biomechanics; 3) sport psychology; 4) motor development; 5) motor control; 6) sport history; and 7) sport sociology. This course will examine these areas of study within Kinesiology from scientific and applied perspectives.
**Restriction:** Must be a Kinesiology major within first 2 semesters; or must not be in Kinesiology program and have less than 45 credits.
**Credit Only Granted for:** KNES200 or KNES201.

**KNES201 Kinesiological Principles of Physical Activity (1 Credit)**
An introduction to Kinesiology, the study of human movement, through the experience of learning a specific motor skill or being engaged in physical activity. Emphasis on the theories and knowledge underlying the learning and performance of all motor and sport skills.
**Corequisite:** Any physical activity course, e.g., KNES 100-190; or permission of SPHL-Kinesiology department.
**Restriction:** Must be in a major in SPHL-School of Public Health.
**Credit Only Granted for:** KNES200 or KNES201.

**KNES214 Science and Methods of Personal Fitness Instruction (3 Credits)**
Basic concepts of human anatomy, exercise physiology, applied kinesiology, nutrition and the physiology of exercise training. Includes the CORE knowledge required for the American Council on Exercise (ACE) Personal Trainer certification.
**Credit Only Granted for:** KNES214 or KNES210 and KNES211, or KNES210 and KNES212, or KNES289N.
**Formerly:** KNES210/KNES211, KNES210/KNES212, and KNES289N.

**KNES218 Laboratory in Teaching (1 Credit)**
The course is designed to prepare the student for the student teaching experience by assisting in a class.
**Prerequisite:** Permission of SPHL-Kinesiology department.
**Repeatable to:** 2 credits.

**KNES222 Gambling in the New Millennium: Poker, The Preakness, Point-spreads, Powerball and Public Policy (3 Credits)**
Is gambling in the public interest? Students will critically examine the various implications of "what it means to gamble" through investigations of various gambling forms, different sectors of the gambling industry and the related economics, along with consumer behavior, sport, public policy and public health in this context.
**Recommended:** ENGL101 and COMM107.

**KNES225 Hoop Dreams: Black Masculinity and Sport (3 Credits)**
Has sport disadvantaged African American males? This course critically examines sport as a site where notions of black masculinity are publicly debated, critiqued, challenged, celebrated, and also transformed. Utilizing an interdisciplinary approach, this course explores how sport has been invoked across the political and ideological spectrum to interrogate a number of issues impacting the life chances of young, African Americans males including educational attainment, poverty, social mobility, racism, cultural production, and notions of masculinity.
**Credit Only Granted for:** KNES289R OR KNES225.
**Formerly:** KNES289R.

**KNES226 The Cybernetic Human (3 Credits)**
Can the profound and rapid technological advances experienced in the 21st century change what it means to be human or the nature of humanity? Emergent technologies, new materials, increased computer power, engineering innovations, and groundbreaking work in the sciences of cognition and action provide myriad opportunities for repairing and enhancing the human body and brain. Examines the ethical, social, and technological implications of an increasing synergism of technology and the body in sports and the arts, at work or home, rehabilitating the body and the brain, and society at large.
**Credit Only Granted for:** KNES289W OR KNES226.
**Formerly:** KNES289W.

**KNES235 Swimming Pool Management (2 Credits)**
Analysis of the position of the swimming pool manager. The systematic treatment of swimming pool water; swimming pool first aid; and laws pertaining to swimming pool operation. Qualifies the student for a pool operator's license in most Maryland counties.
**Credit Only Granted for:** KNES235 or KNES335.
**Formerly:** KNES335.

**KNES243 Sports Finance & Business Intelligence (3 Credits)**
As society has evolved with advances in technology, so have the financial and analytical fundamentals of spectator sports leagues. In this course, students will examine modern business principles in for-profit sports leagues, understand current practices for successful operation and revenue generation, and explore how analytics and emerging categories play a crucial role in an organization's growth and competitiveness in their respective markets.

**KNES246 Transformational Leader in Sport: The Art and Science of Coaching (3 Credits)**
Highlights the expectations and ethical problems facing developmental sport programs and youth athletic coaches today. Explores the continuum of coaching from Buttermaker (Bad News Bears) to Belichick (New England Patriots). We first examine the issues of sports, physical inactivity and obesity from a physiological, psychological, social, political, and economic perspective. Next, we will focus on how transformational leadership behaviors, knowledge, and communication influence changes in intrapersonal, interpersonal, and environmental aspects. Finally, we will employ a practical, manageable method for coaches to develop their athletes and programs.

**KNES260 Science of Physical Activity and Cardiovascular Health (3 Credits)**
Course details (1) the public health importance of and the processes underlying cardiovascular disease, (2) the risk factors for cardiovascular disease and the methods whereby they were identified, and (3) the principles of the scientific evidence supporting the use of physical activity to prevent cardiovascular disease.

**KNES265 Mathematical, Physical, & Statistical Basis of Kinesiology (3 Credits)**
Mathematical, physical, and statistical foundations for human movement quantification, analysis, and evaluation. Upon successful completion, this course is expected to better prepare students for the science Core courses, such as biomechanics, exercise physiology, and motor control, that are required for Kinesiology majors.
**Credit Only Granted for:** KNES265 or KNES289P.
**Formerly:** KNES289P.

**KNES282 Basic Care and Prevention of Athletic Injuries (3 Credits)**
Theoretical and practical foundations of the prevention, treatment and rehabilitation of athletically related injuries. Topics include: physical conditioning, preventive taping, recognition of injuries, first aid and CPR.
**Restriction:** Must be in a major within the SPHL-Kinesiology department.

**KNES285 History of Physical Culture, Sport, & Science in America (3 Credits)**
Examines the history of physical culture in America, focusing on the period from the end of the Civil War to the Cold War. Physical culture refers to a broad range of movement practices including sport, play, rehabilitative exercise, health and fitness training, and recreation and leisure. More specifically, we challenge the idea that historical physical culture practices--and the scientific processes from which they were derived--were 'neutral' or 'objective'; rather, we explore the cultural, social, political, and economic contexts shaping physical culture knowledge, study, structures, and policies across American history. The goal is for you to learn and apply techniques of historical analysis to develop a critical understanding of how knowledge about, and practices of, physical culture supported a particular social order via the construction of difference, norms, and/or hierarchies, and ultimately contributed to some of the inequalities that endure today.
**Restriction:** Restricted to majors or non-majors with less than or equal to 60 credits.
**Credit Only Granted for:** KNES285 or KNES293.

**KNES286 Empowering Healthy Physical Activity (3 Credits)**
Learn evidence-based techniques that health professionals use to promote physical activity programs that meet the needs of diverse populations. Develop and implement an intervention plan targeting a specific population.

**KNES287 Sport and American Society (3 Credits)**
Sport will be related to such social problems as delinquency, segregation, collective behavior, and leisure; to social processes such as socialization, stratification, mobility, and social control; and to those familiar social institutions the family, the school, the church, the military, the economy, the polity, and the mass media.
**Recommended:** Minimum grade of C- in KNES285.

**KNES289 Topical Investigations (1-6 Credits)**
Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses.
**Repeatable to:** 6 credits.

**KNES293 History of Sport in America (3 Credits)**
The growth and development of sport in America. The transformation of sport within the perspective of American history, including class sport, professionalization, amateurism, and international involvement.

**KNES300 Biomechanics of Human Motion (4 Credits)**
The study of human movement and the physical and physiological principles upon which it depends. Body mechanics, posture, motor efficiency, sports, the performance of a typical individual and the influence of growth and development upon motor performance.
**Prerequisite:** Minimum grade of C- in BSCI201; and minimum grade of C- in MATH113 or higher.
**Recommended:** KNES265 or PHYS121.
**Restriction:** Must be in a major within SPHL-Kinesiology department.

**KNES305 Principles & Application of Exercise Rehabilitation (3 Credits)**
In-depth analysis of the basic principles of rehabilitation and exercise programming for common injuries encountered in a clinical setting. Basic assessment techniques, ranges of motion, muscular anatomy, rehabilitative protocols, and exercise modalities are a major focus.
**Prerequisite:** Minimum grade of C- in BSCI201 and BSCI202; and 1 course with a minimum grade of C- from (KNES300, KNES350, KNES360, KNES370, KNES385).
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES498T or KNES305.
**Formerly:** KNES498T.

**KNES306 Prosthetics for Limb Amputations (3 Credits)**
Introduction to the science of prosthetics and the artificial devices that are designed, developed and fit to replace the missing body part or parts lost through trauma, disease or congenital conditions.
**Prerequisite:** Minimum grade of C- in BSCI201, BSCI202, and KNES300.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES306 or KNES498W.
**Formerly:** KNES498W.

**KNES320 Physiological Basis of Physical Activity and Human Health (4 Credits)**
A study of the responses and chronic adaptations to physical activity and exercise, with particular emphasis on the interaction between human health and physical activity. The laboratory component of course will focus on the assessment of physical activity and measurement of physiological adaptations to exercise. Students are expected to gain an understanding and appreciation for the benefits of physical activity and exercise in the context of public health.
**Prerequisite:** Minimum grade of C- in BSCI201 and BSCI202.
**Restriction:** Must be in Public Health Science program.
**Credit Only Granted for:** KNES360 or KNES320.

**KNES332 Exercise Testing & Prescription for Fitness Professionals (3 Credits)**
Practical applications of exercise physiology and psychology to target fitness instruction for the general adult population Includes discussion of certification standards and professional development as well as evaluation of program safety and current trends.
**Prerequisite:** Minimum grade of C- in KNES360.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES332 or KNES389G.
**Formerly:** KNES389G.

**KNES333 Motor Development and Fitness for Individuals with Disabilities (3 Credits)**
Implications of Federal and State regulations for planning and implementing motor development and physical fitness programs for individuals with disabilities. Evaluation strategies for assessing motor performance and fitness levels in educational programs for these individuals.
**Prerequisite:** Minimum grade of C- in KNES370.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 60 credits.

**KNES334 Adapted Physical Activity: Empowering People with Disabilities to Lead a Healthy and Active Lifestyle (3 Credits)**
Study of the field of adapted physical activity and its impact on the health and wellness of individuals with disabilities. Students will design an adapted physical activity program proposal and develop the skills needed to empower people with disabilities to participate in physical activity and sports programs. Students will explore their own perceptions towards disability and how people with disabilities are portrayed in our society. They will study the etiology of disabling conditions and the implications for participating in physical activity.
**Prerequisite:** KNES370; or students not in the Kinesiology major may contact the instructor for permission.
**Restriction:** Must have earned a minimum of 105 credits.

**KNES342 Sport, Commerce, and Culture in the Global Marketplace (3 Credits)**
The Sport, Commerce, and Culture in the Global Marketplace study abroad program is designed for students who are interested in the relationship between sport, culture, and the contemporary global economy.
**Recommended:** KNES287.
**Credit Only Granted for:** KNES389A or KNES342.
**Formerly:** KNES389A.

**KNES346 Sport for Development (3 Credits)**
Examines how sport-based programs and organizations are used by governments, multinational corporations, and non-government organizations (NGO's) to reach personal, community, national and international development objectives; focuses on theorizing the histories of international development and contemporary global issues; contextualizes the interrelationship of theory, institutions, and practices of domestic and international sport for development and peace programing.
**Prerequisite:** Must have earned a minimum grade of C- in KNES287.
**Recommended:** KNES485.
**Restriction:** Must be a major within the SPHL-Kinesiology department and must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES389D or KNES346.
**Formerly:** KNES389D.

**KNES347 Sport Economics (3 Credits)**
Examines sport as a diverse cultural form through which physical activity is organized, regulated, and consumed within contemporary society. Evaluation of the complex interactions between sport culture economic institutions and forces.
**Prerequisite:** Minimum grade of C- in KNES287.
**Recommended:** KNES355, ECON111, and ECON200.
**Restriction:** Must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES347 or KNES389I.
**Formerly:** KNES389I.

**KNES350 The Psychology of Sports & Exercise (3 Credits)**
An exploration of personality factors, including but not limited to motivation, aggression and emotion, as they affect sports participation and motor skill performance.
**Restriction:** Must have earned a minimum of 45 credits.

**KNES355 Sport Management (3 Credits)**
Application of concepts and issues related to management principles and business concerns across various sections of the sport industry. Principles pertaining to the management of sport organizations.
**Prerequisite:** Minimum grade of C- in KNES287.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES355 or KNES498M.

**KNES360 Physiology of Exercise (4 Credits)**
A study of the physiology of exercise, including concepts of work, muscular contraction, energy transformation, metabolism, oxygen debt, and nutrition and athletic performance. Emphasis on cardiovascular and respiratory function in relation to physical activity and training.
**Prerequisite:** Minimum grade of C- in BSCI201 and BSCI202; or permission of SPHL-Kinesiology department.
**Restriction:** Must be in one of the following programs (Kinesiology; Public Health Science).

**KNES370 Motor Development (3 Credits)**
Motor development across the life span. The developmental sequences of motor skills from birth to old age; neuromaturation of neuromuscular system; analysis of the underlying mechanisms of motor skill development; and correlates of motor development.
**Restriction:** Must be in a major within SPHL-Kinesiology department.

**KNES385 Motor Control and Learning (4 Credits)**
This introductory course investigates how humans control and adapt their movements to perform and learn a variety of motor skills, ranging from activities of daily living to elite athlete performance. This course examines the underlying cognitive, sensory and motor processes of control and adaptation of human movements both at the behavioral and neurophysiological levels. Relevant applications to movement rehabilitation as well as performance optimization are employed to illustrate the concepts discussed in class. The cognitive, sensory and motor mechanisms underlying motor control are explored first and then in a motor learning context.
**Prerequisite:** Minimum grade of C- in BSCI201, and a minimum grade of C- in MATH113 or higher.
**Recommended:** KNES265 or PHYS121.
**Restriction:** Must be in a major within SPHL-Kinesiology department.

**KNES386 Experiential Learning (3-6 Credits)**
Explore and analyze concepts and procedures related to a quality service-learning experience to include planning, implementing, and evaluating a service-learning project.
**Prerequisite:** Must have completed three KNES core classes.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 75 credits.

**KNES389 Topical Investigations (1-3 Credits)**
Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses.
**Repeatable to:** 6 credits.

**KNES400 The Foundations of Public Health in Kinesiology (3 Credits)**
An investigation of the role of physical activity and inactivity in relation to health and well-being through a public health perspective. Past and current perspectives on health promotion, health education, and social policies and approaches will be examined for various populations.
**Prerequisite:** Minimum grade of C- in KNES287.
**Restriction:** Senior standing or higher; and must be in a major within the SPHL-Kinesiology department.

**KNES401 Zip Code: Prediction of Physical Activity & Health (3 Credits)**
An exploration of the relationship and impacts of built and other social environments on health, including physical activity, social equity, gentrification, and many others.
**Prerequisite:** Minimum grade of C- in SPHL100.
**Restriction:** Must have earned a minimum of 75 credits; and must be in a major within, SPHL-Kinesiology department.

**KNES402 Biomechanics of Sport (3 Credits)**
Mechanical determinants influencing sport techniques. A quantitative, scientific basis for sport analysis with emphasis on the application to numerous sport activities. Evaluation and quantification of the filmed performance of athletes.
**Prerequisite:** Minimum grade of C- in KNES300.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 75 credits.

**KNES405 Principles & Techniques of Manual Muscle Testing (3 Credits)**
It is critical for sports medicine and sport performance specialists to understand the location and inter-relationships of the structures of the body that impact human movement. Thus, the primary purpose of this course is to facilitate an in-depth, understanding of the muscles of the body. Specifically, students will learn the origins, insertions, primary and secondary functions, as well as nervous innervations of the major muscle groups of the body. In addition, students will develop palpation skills and learn to grade the function of each muscle through manual muscle testing techniques. These skills form the foundation for assessing functional movement as well as performing safe and effective manual therapy techniques. Thus, while the focus of the class will be to develop sound, introductory palpation and manual muscle testing skills, basic principles of functional movement and manual therapy will also be addressed through hands-on application as well as case study.
**Prerequisite:** Minimum grade of C- in BSCI201 and BSCI202; and 1 course with a minimum grade of C- from Kinesiology core courses at the 300-level or higher.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 105 credits.
**Additional Information:** This course emphasizes hands-on application of skills. Course participation is critical.

**KNES440 Psychology of Athletic Performance (3 Credits)**
Examines the psychological factors, mechanisms, and processes in athletic performance. Utilizes a social psychological approach to focus on the study and review of individual performance in both the interpersonal and social context.
**Prerequisite:** Minimum grade of C- in KNES350.
**Restriction:** Must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES498P, KNES689Z, or KNES440.

**KNES442 Psychology of Exercise and Health (3 Credits)**
Examines the antecedents and consequences of exerciese behavior. Explores motivation, attitude, control, socialization. Proposes intervention strategies at the individual, organizational and societal levels.
**Prerequisite:** Minimum grade of C- in KNES350.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES442 or KNES498O.
**Formerly:** KNES498O.

**KNES445 Exercise and Brain Health (3 Credits)**
Examines the evidence for exercise to affect brain function and brain health in children, in adults, and in old age. Covers the adaptations to acute and chronic exercise within brain networks related to emotion, stress reactivity, memory, and executive function, and the effectiveness of physical activity and exercise as treatments for depression, anxiety disorders, and cognitive impairment.
**Prerequisite:** Minimum grade of C- in KNES350.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES498C or KNES445.
**Formerly:** KNES498C.

**KNES451 Children and Sport: A Psychosocial Perspective (3 Credits)**
Examination of youth sports from a psychosocial perspective, including the impact of highly structured sports on young athletes and the complex social network of coaches, parents and peers.
**Prerequisite:** Minimum grade of C- in KNES350.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 105 credits.

**KNES455 Scientific Bases of Athletic Conditioning (3 Credits)**
An examination of physical fitness/athletic conditioning programs stressing the practical application of exercise physiology theory for enhancing athletic performance. Cardiovascular considerations, strength and power development, nutrition, speed, muscular endurance, environmental considerations and ergogenic aids.
**Prerequisite:** Minimum grade of C- in KNES360.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 75 credits.

**KNES457 Managing Youth Programs: Educational, Fitness and Sport (3 Credits)**
An examination of the basic functions involved in managing physical education, fitness, and youth sports programs. Focus on leadership skills, organizational management, and techniques for applying learned skills in a variety of organizational settings that serve the nation's youth.
**Prerequisite:** Minimum grade of C- in KNES350 and KNES370.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES457 or KNES498Y.

**KNES460 Physiology of Aging and the Impact of Physical Activity (3 Credits)**
Biology of the aging process in healthy individuals and those with chronic disease, the effects of acute exercise and exercise training on the physiological decline that occurs in humans, and the role that regular physical activity plays on enhancing the quality of life and activities of daily living in individuals.
**Prerequisite:** 1 course with a minimum grade of C- from (KNES320, KNES360).
**Restriction:** Must be in one of the following programs (Kinesiology; Public Health Science); and must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES498F or KNES460.
**Formerly:** KNES498F.

**KNES461 Exercise and Body Composition (3 Credits)**
An in-depth overview on how body composition is measured, what it is composed of, and the physiological and biochemical signals that change it. The effects of acute and chronic exercise on food storage, breakdown, and use as an energy source, is the major focus. This information is applied to important issues in public health and athletic performance.
**Prerequisite:** 1 course with a minimum grade of C- from (KNES320, KNES360).
**Restriction:** Must be in one of the following programs (Kinesiology; Public Health Science) ; and must have earned a minimum of 75 credits.

**KNES462 Neural Basis of Human Movement (3 Credits)**
An introduction to the neural substrates which underlie postural and volitional movement. Neuroanatomical and neurophysiological basis of motor functioning; past and present conceptualizations of motor control and coordination; movement disorders; and maturation of the neuromuscular system.
**Prerequisite:** Minimum grade of C- in BSCI201, BSCI202, and KNES385; or permission of SPHL-Kinesiology department.
**Restriction:** Must have earned a minimum of 75 credits.

**KNES463 Principles and Methods of Physical Activity Interventions (3 Credits)**
Understanding of the planning, implementation, and evaluation of physical activity interventions. Intervention methods and practical strategies fo formulate well-conceived physical activity interventions across a variety of settings and participant populations.
**Prerequisite:** Minimum grade of C- in KNES350 and KNES360.
**Restriction:** Must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES463 or KNES498G.

**KNES464 Exercise Metabolism: Role in Health and Disease (3 Credits)**
Examines the role of metabolism in kinesiology, especially as it relates to physical inactivity, health and disease. Includes bioenergetics, substrate utilization, cell signaling, and metabolic gene expression and their impact on chronic health conditions or disease.
**Prerequisite:** Minimum grade of C- in KNES360.
**Restriction:** Must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES464 or KNES498L.

**KNES465 Physical Activity and Disease Prevention and Treatment (3 Credits)**
Critically examines the scientific evidence that supports the use of physical activity to prevent and treat age-related diseases, including cardiovascular disease, diabetes, abnormal lipoprotein-lipid levels, hypertension, obesity, osteoporosis and cancer.
**Prerequisite:** 1 course with a minimum grade of C- from (KNES320, KNES360).
**Restriction:** Must have earned a minimum of 75 credits.

**KNES466 Graded Exercise Testing (3 Credits)**
Functional and diagnostic examination of the cardiovascular responses to graded exercise testing. Emphasis on electrophysiology, mechanisms of arrhythmias, normal electrical activation of the heart, axis termination and the normal 12-lead electrocardiogram.
**Prerequisite:** Minimum grade of C- in KNES360.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 75 credits.

**KNES467 Genetics in Physical Activity and Sport (3 Credits)**
Dedicated to understanding the role of genetics in kinesiology, especially within the contexts of physical activity and sport. Specific genes and phenotypes will be explored.
**Prerequisite:** Minimum grade of C- in KNES360. And must be concurrently enrolled in STAT100 or have completed STAT100 with a minimum grade of C-; or students who have taken courses with comparable content may contact the department.
**Restriction:** Must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES467 or KNES498Q.

**KNES474 Quantitative Methods in Cognitive Motor Behavior - MATLAB (3 Credits)**
Includes basic computer programming, algorithm, and quantitative techniques for time-series data with an emphasis on, but not limited to, human movement. These topics will be taught using MATLAB, a programming language and environment for numerical computation, data analysis, and visualization.
**Prerequisite:** MATH115 or equivalent; or permission of Kinesiology department.
**Recommended:** MATH240.
**Restriction:** Must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES498Q or KNES474.
**Formerly:** KNES498Q.

**KNES476 Honors Thesis Proposal (3 Credits)**
Development of honors thesis proposal based on preliminary research and literature review. Presentation of formal proposal to the thesis committee and fellow honors students.
**Corequisite:** KNES478.
**Restriction:** Must be a KNES Honors student; and senior standing.
**Credit Only Granted for:** KNES476 or KNES498R.

**KNES477 Honors Thesis (3 Credits)**
Advisement will be on the individual basis. Thesis must be defended in the honors seminar.
**Prerequisite:** KNES476.
**Corequisite:** KNES478.
**Restriction:** Must be a KNES Honors student; and senior standing.
**Credit Only Granted for:** KNES399 or KNES477.

**KNES478 Honors Seminar (1-3 Credits)**
Guided discussion of research topics of current interest.
**Restriction:** Must be a KNES Honors student; and junior standing or higher.
**Repeatable to:** 4 credits if content differs.
**Credit Only Granted for:** KNES398 or KNES478.

**KNES482 Socio-behavioral Aspects of Human Movement (3 Credits)**
Derivation, formulation, and application of research in the socio-behavioral aspects of human movement.
**Prerequisite:** KNES293, KNES350, and KNES287.

**KNES483 Sport Marketing and Media (3 Credits)**
Industry practices in sport marketing and media. Marketing strategies and consumer behavior in different sport contexts. Critical examination of selected social and economic issues related to the buying and selling of sport.
**Prerequisite:** Minimum grade of C- in KNES287.
**Recommended:** KNES355.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 75 credits.

**KNES484 Sporting Hollywood (3 Credits)**
Popular representations of sport within the film media related to wider social discourses on bodies and the politics of various categories of subjectivity (gender, sex, race, class and nationality).
**Prerequisite:** Minimum grade of C- in KNES285 and KNES287.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 75 credits.

**KNES485 Sport and Globalization (3 Credits)**
Examination of sport culture from a global perspective; focuses on theorizing the similarities and differences between various national sporting cultures.
**Prerequisite:** Minimum grade of C- in KNES287.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 75 credits.

**KNES487 Women, Sports and Culture (3 Credits)**
A study of the historical barriers to women's participation in physical activity, efforts to dismantle those barriers, and the differentiation that exists in women's sport and physical culture today. Exploration of the historical and contemporary factors involving female athletes in U.S. culture.
**Prerequisite:** Minimum grade of C- in KNES287.
**Restriction:** Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 75 credits.
**Credit Only Granted for:** KNES498E or KNES487.

**KNES497 Kinesiology Senior Seminar (3 Credits)**
Discussions of contemporary issues vital to the discipline, critiques of research in the student's area/areas of special interest, completion of a major project where the student will be asked to demonstrate the ability to carry out investigative processes in problem solving and critical writing under faculty direction.
**Prerequisite:** A professional writing course with a minimum grade of C-; and must have completed 6 KNES core courses and 2 KNES option courses, all with a C- or higher; and must have completed STAT100 with a C- or better.
**Restriction:** Senior standing or higher; and must be in Kinesiology program; and permission of department.

**KNES498 Special Topics in Kinesiology (3 Credits)**
Topics of special interest in areas not covered by regularly scheduled courses.
**Prerequisite:** Permission of SPHL-Kinesiology department.
**Repeatable to:** 99 credits if content differs.

# KORA - Korean

**KORA101 Elementary Korean I (3 Credits)**
Introduction to the Korean language. Primary emphasis on oral skills, but Hangul, the Korean alphabet, will also be introduced.
**Prerequisite:** Must have appropriate World Language Placement Test (WLPT) score; and permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Must be a non-Heritage student with no background in Korean.

**KORA102 Elementary Korean II (3 Credits)**
Continued training in elementary spoken and written Korean.
**Prerequisite:** KORA101; or must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Must be a non-Heritage student; and permission of instructor required for new students.

**KORA201 Intermediate Korean I (3 Credits)**
An intermediate-level course designed for non-Heritage students. It begins the second year of instruction in the University's two-track Korean Program.
**Prerequisite:** KORA102; or permission of instructor.

**KORA202 Intermediate Korean II (3 Credits)**
The second stage of an intermediate-level course designed for non-Heritage students. It continues the second year of instruction in the University's two track Korean Program.
**Prerequisite:** KORA201; or permission of instructor.

**KORA241 History of the Korean Language (3 Credits)**
The origins of the Korean language and its development from earliest recorded times to the present. The relationship of Korean to other languages. Taught in English.

**KORA269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**KORA345 Korean Language and Linguistics (3 Credits)**
An exploration of Korean language and society, in particular the role and nature of the alphabet, Korean sounds, lexical and grammatical structures, and usage in today's South Korea.
**Prerequisite:** KORA102 or KORA211; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**KORA369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**KORA398 Special Topics in Korean Studies (3 Credits)**
Study of particular aspect of Korean language, literature, and/or culture. Topic and language of instruction to be announced when course is offered.
**Repeatable to:** 9 credits if content differs.

**KORA499 Independent Study Korean (1-3 Credits)**
Independent study under faculty supervision.
**Prerequisite:** Permission of instructor.
**Repeatable to:** 6 credits if content differs.

# LACS - Latin American and Caribbean Studies

**LACS148 Special Topics in Latin American and Caribbean Studies (3 Credits)**
Topics to be announced when offered.
**Repeatable to:** 6 credits if content differs.
**Formerly:** LASC148.

**LACS234 Issues in Latin American and Caribbean Studies I (3 Credits)**
Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America's cultural mosaic, migration and urbanization. Democratization and the role of religions. Taught in English.
**Cross-listed with:** PORT234, SPAN234.
**Credit Only Granted for:** LASC234, PORT234, SPAN234, or LACS234.
**Formerly:** LASC234.

**LACS235 Issues in Latin American and Caribbean Studies II (3 Credits)**
Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. Taught in English.
**Cross-listed with:** PORT235, SPAN235.
**Credit Only Granted for:** LASC235, PORT235, SPAN235, or LACS235.
**Formerly:** LASC235.

**LACS248 Special Topics in Latin American and Caribbean Studies (3 Credits)**
Topics to be announced when offered.
**Repeatable to:** 6 credits.
**Formerly:** LASC248.

**LACS250 History of Colonial Latin America (3 Credits)**
Introductory survey of the history of Latin America from pre-Columbian Indian cultures to the beginning of the wars for independence (ca. 1810), covering cultural, political, social, and economic developments. Major themes include conquest, colonialism, indigenous culture, African slavery, religion, race and ethnicity, and gender ideologies.
**Cross-listed with:** HIST250.
**Credit Only Granted for:** LASC250, HIST250, OR LACS250.
**Formerly:** LASC250.

**LACS251 Latin America Since Independence (3 Credits)**
Introductory survey of the history of Latin America from the era of independence (c. 1810-1825) through the early 1980s. Major themes include independence and sovereignty, postcolonialism and neocolonialism, nation- and state-building, liberalism, citizenship, economic development and modernization, social organization and stratification, race and ethnicity, gender relations, identity politics, reform and revolution, authoritarianism and democratization, and inter-American relations.
**Cross-listed with:** HIST251.
**Credit Only Granted for:** HIST251, LASC251, or LACS251.
**Formerly:** HIST251 or LASC251.

**LACS269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.
**Formerly:** LASC269.

**LACS286 Internship in Latin American/Caribbean Studies (1-6 Credits)**
Internship experience with an organization that works with or studies Latin American and/or the Caribbean. This is an experiential learning course that provides semester-long training that enriches the student's academic field of study and the LASC Certificate. Students submit a final written report of how the experience ties into their major field of study.
**Prerequisite:** LASC234, SPAN234, LASC235, SPAN235, LACS250, HIST250, LACS251, or HIST251; and permission of Latin American and Caribbean Studies Center required.
**Restriction:** Minimum cumulative GPA of 2.5; and cannot have more than 60 credits total.
**Credit Only Granted for:** LASC286 or LACS286.
**Formerly:** LASC286.
**Additional Information:** The course is primarily intended for students seeking the Certificate in Latin American and Caribbean Studies, but exceptions will be considered for students with educational or career interests which lie in this area. Student internships must be approved by the Director and students must secure an appropriate faculty mentor to supervise the internship course.

**LACS348 Special Topics in Latin American and Caribbean Studies (3 Credits)**
Topics to be announced when offered.
**Repeatable to:** 6 credits if content differs.

**LACS348E Caribbean Literature in English (3 Credits)**
Political and literary traditions that intersect in the fiction, poetry, and drama written in English by Caribbean writers, primarily during the 20th century.
**Cross-listed with:** ENGL362.
**Credit Only Granted for:** ENGL362, LASC348E, or LACS348E.

**LACS369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.
**Formerly:** LASC369.

**LACS448 Special Topics in Latin American and Caribbean Studies (3 Credits)**
Intensive study of a selected topic related to Latin American and Caribbean Studies.
**Restriction:** Junior standing or higher.
**Repeatable to:** 6 credits if content differs.

**LACS458 Senior Capstone Course in Latin American and Caribbean Studies (3 Credits)**
Capstone course for advanced students in the Latin American and Caribbean Studies Certificate Program or other students with appropriate preparation. Interdisciplinary topics will vary each semester.
**Prerequisite:** LASC234 and LASC235; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Must be in Latin American and Caribbean Studies Certificate program; and senior standing.

**LACS486 Internship in Latin American/Caribbean Studies (1-6 Credits)**
Internship experience with an organization that works with or studies Latin American and/or the Caribbean. This is an experiential learning course that provides semester-long training that enriches the student's academic field of study and the LACS Certificate. Students submit a final written report of their experience, including critical analysis of the institutional relevance to their major field of study and to Latin American and Caribbean Studies. Students will also be asked to give an oral presentation.
**Prerequisite:** Student must have completed at least two LACS courses, one of which must be a required/core course (LACS/SPAN234, LACS/SPAN235, LACS/HIST250, or LACS/HIST251); and permission of Latin American Studies Center required.
**Restriction:** Minimum cumulative GPA of 2.5; and must have earned a minimum of 60 credits.
**Credit Only Granted for:** LASC486 OR LACS486.
**Formerly:** LASC486.
**Additional Information:** The course is primarily intended for students seeking the Certificate in Latin American and Caribbean Studies, but exceptions will be considered for students with educational or career interests which lie in this area. Student internships must be approved by the Director, and students must secure an appropriate faculty mentor for the internship course. An internship course will be approved only if a faculty supervisor is available.

**LACS499 Independent Study in Latin American and Caribbean Studies (1-3 Credits)**
Independent Study in Latin American and Caribbean Studies.
**Restriction:** Permission of instructor.
**Repeatable to:** 6 credits.
**Formerly:** LASC499.

# LARC - Landscape Architecture

**LARC120 Computer Visualization I (3 Credits)**
Provides the opportunity to 1) explore basic design principles and practice 2) explore and apply computer concepts and principles, 3) learn and apply basic computer tools used in landscape architecture and allied disciplines and 4) demonstrate competency in design vocabulary and computer applications through demonstrated deliverables used in the built environment design fields.
**Restriction:** Permission of AGNR-Plant Science & Landscape Architecture department; and must be in Landscape Architecture program.
**Credit Only Granted for:** LARC120 or LARC131.
**Formerly:** LARC120.

**LARC121 Computer Visualization in Design (3 Credits)**
Students are provided with the opportunity to 1) explore basic design principles and practice, 2) explore and apply computer concepts and principles, 3) learn and apply basic computer tools used in landscape architecture and allied disciplines, and 4) demonstrate competency in design vocabulary and computer applications through demonstrated deliverables used in the built environment design fields.

**LARC131 Computer Visualization I (3 Credits)**
Provides the opportunity to 1) explore basic design principles and practice 2) explore and apply computer concepts and principles, 3) learn and apply basic computer tools used in landscape architecture and allied disciplines and 4) demonstrate competency in design vocabulary and computer applications through demonstrated deliverables used in the built environment design fields.
**Restriction:** Permission of AGNR-Plant Science & Landscape Architecture department; and must be in Landscape Architecture program.
**Credit Only Granted for:** LARC120 or LARC131.
**Formerly:** LARC120.

**LARC140 Graphic Fundamentals Studio (4 Credits)**
Basic techniques and application of various media for graphic communication associated with landscape architecture.
**Recommended:** Concurrently enrolled in LARC160.
**Restriction:** Permission of AGNR-Plant Science & Landscape Architecture department; and must be in Landscape Architecture program.

**LARC141 Design Fundamentals Studio (5 Credits)**
Introduction to the fundamentals of basic design focusing on creative problem solving associated with landscape architecture. Here you will explore design with different geometries, organizing principles, concept development, spatial definition, land formation, structures and plants. Emphasis will be given on how to represent design ideas using measured drafting techniques and presentation board organization. A series of foundational exercises will culminate in the redesign of a small public space.
**Prerequisite:** Must have completed or be concurrently enrolled in LARC265 and LARC266.
**Corequisite:** LARC220.
**Restriction:** Permission of AGNR-Plant Science & Landscape Architecture department; and sophomore standing or higher; and must be in Landscape Architecture program.
**Credit Only Granted for:** LARC141 or LARC230.
**Formerly:** LARC141.

**LARC151 Urban Agriculture: Designing and Assessing Edible Landscapes (3 Credits)**
Students will examine the growing development of urban agriculture and edible landscapes. Urban agriculture has seen a recent growth and interest in cities across the globe. From Paris to New York, from Baltimore to Detroit, urban agriculture is an emerging land use to address a variety of needs. Redevelopment, food deserts, community engagement and environmental justice are just some of the issues and topics that are connected to the recent growth of urban agriculture. This course will take a critical examination of urban agriculture's contribution to the food system, its input and outputs in the urban landscape, and the planning and design of urban agriculture and edible landscapes.

**LARC152 Greening Cities: Who Wins, Who Loses, and Who Cares? (3 Credits)**
"Greening Cities" can have many interpretations: improving or adding urban economic activity, realizing energy efficiency, greening urban transport systems, etc. An important component of livable and sustainable cities and metropolitan ecosystems are the plants and landscapes that are inhabited by plants. With the majority of humans now living in cities, a survey of urban ecosystem principles and an examination of design and planning strategies for plant and landscape resources in urban and metropolitan regions is critical.
**Credit Only Granted for:** LARC152 or PLSC289I.
**Formerly:** PLSC289I.

**LARC160 Introduction to Landscape Architecture and Environmental Design (3 Credits)**
History, theory, philosophy and current practice of the profession of landscape architecture. Explores the interactive relationship between humans and their environment by examining people's perceptions of and changing attitude towards the landscape, as well as, an examination of how these are related to ecological and cultural influences. Topics include urban, ecological, community and creative design.

**LARC162 Environmental Justice: Same World, Different Built Environment (3 Credits)**
Environmental Justice will be explored in the context of the built environment. What unequal public built environmental threats exist? How can these threats be prevented or eliminated? Public schools, public parks, access to clean water, air pollution, tree coverage are among the built environments examined in the course.

**LARC188 Special Topics in Landscape Architecture (1-3 Credits)**
A lecture course for students interested in Landscape Architecture to cover topics not formally taught in existing courses. An introductory class on a group of closely-related topics for students with an interest in this discipline.
**Repeatable to:** 6 credits if content differs.

**LARC220 Landscape Visualization II (4 Credits)**
Basic techniques and application of various media for graphic communication associated with landscape architecture.
**Corequisite:** LARC230.
**Restriction:** Permission of AGNR-Plant Science & Landscape Architecture department; and sophomore standing or higher; and must be in Landscape Architecture program.
**Credit Only Granted for:** LARC140 or LARC220.
**Formerly:** LARC140.

**LARC221 Digital Design Tools (3 Credits)**
The development and application of computing skills as used by the landscape architecture profession. This Computer-Aided Design and Drafting (CADD) course develops computer drafting using a variety of software programs. It also introduces students to Geographic Information Systems (GIS) mapping technologies.
**Prerequisite:** LARC120 and LARC141.
**Recommended:** LARC240 and LARC265.
**Restriction:** Sophomore standing or higher; and must be in Landscape Architecture program.

**LARC230 Design Fundamentals Studio (5 Credits)**
Introduction to the fundamentals of basic design focusing on creative problem solving associated with landscape architecture. Here you will explore design with different geometries, organizing principles, concept development, spatial definition, land formation, structures and plants. Emphasis will be given on how to represent design ideas using measured drafting techniques and presentation board organization. A series of foundational exercises will culminate in the redesign of a small public space.
**Prerequisite:** Must have completed or be concurrently enrolled in LARC265 and LARC266.
**Corequisite:** LARC220.
**Restriction:** Permission of AGNR-Plant Science & Landscape Architecture department; and sophomore standing or higher; and must be in Landscape Architecture program.
**Credit Only Granted for:** LARC141 or LARC230.
**Formerly:** LARC141.

**LARC231 Site Planning and Design Studio (5 Credits)**
An examination of the influence of landscape character and site features (natural and cultural) on landscape architecture, architecture and planning through application in the studio setting.
**Prerequisite:** LARC220, LARC265, LARC266, and LARC230.
**Corequisite:** LARC411 and LARC221.
**Restriction:** Must be in Landscape Architecture program; and sophomore standing or higher.
**Credit Only Granted for:** LARC340 or LARC231.
**Formerly:** LARC340.

**LARC240 Graphic Communication and Design Studio (4 Credits)**
Exploration of graphic presentation techniques and original concept development for landscape architecture planning and design.
**Prerequisite:** LARC141 and LARC263.
**Corequisite:** LARC221 and LARC265.
**Restriction:** Sophomore standing or higher; and must be in Landscape Architecture program.

**LARC263 History of Landscape Architecture (3 Credits)**
A survey of landscape architecture history from the ancient Western civilizations to the twentieth century with consideration of parallel developments in the Eastern World, European Africa and the Americas.

**LARC265 Site Analysis and Ecological Principles (3 Credits)**
Principles and methods of site analysis with an emphasis on the application of ecological principles in landscape architecture, architecture and planning.
**Prerequisite:** LARC141.
**Corequisite:** LARC240 and LARC221.
**Restriction:** Permission of AGNR-Plant Science & Landscape Architecture department; and sophomore standing or higher; and must be in Landscape Architecture program.
**Credit Only Granted for:** LARC265 or ARCH460.

**LARC266 Site and Landscape Ecology Field Studies (1 Credit)**
Field Excursions that are essential to apply theory and principles explored in the LARC265 to real world environments.
**Prerequisite:** Must have completed or be concurrently enrolled in LARC230 or LARC640.
**Corequisite:** LARC265.
**Restriction:** Sophomore standing or higher; and must be in Landscape Architecture program.
**Additional Information:** This course requires field trips.

**LARC320 Principles of Site Engineering (3 Credits)**
The study and application of landscape construction principles as applied to grading, drainage, site layout, storm water management, and vehicular and pedestrian circulation.
**Prerequisite:** LARC221.
**Corequisite:** LARC340.
**Restriction:** Must be in Landscape Architecture program; and junior standing or higher.

**LARC321 Landscape Structures and Materials (3 Credits)**
An examination of the use, properties, and detailing of materials used in landscape construction. The use and design of structures in the landscape.
**Prerequisite:** LARC320; and LARC340.
**Restriction:** Must be in Landscape Architecture program.
**Credit Only Granted for:** LARC321 or PLSC321.

**LARC330 Urban Design Studio (5 Credits)**
The landscape architect's role within the interdisciplinary urban design process, focusing on urban site design issues. Pedestrian friendly site design and the future of sustainable development will be studied.
**Prerequisite:** LARC411 and LARC231.
**Corequisite:** LARC412.
**Restriction:** Junior standing or higher; and must be in Landscape Architecture program.
**Credit Only Granted for:** LARC330 or LARC440.
**Formerly:** LARC440.

**LARC331 Regional Design and GIS Studio (5 Credits)**
An examination of the landscape architect's role within the interdisciplinary regional design field incorporating GIS technologies, spatial modeling, and the regional design process.
**Prerequisite:** LARC330 and LARC412.
**Corequisite:** LARC413.
**Restriction:** Must be in Landscape Architecture program.
**Credit Only Granted for:** LARC341 or LARC331.
**Formerly:** LARC341.

**LARC340 Site Planning and Design Studio (5 Credits)**
An examination of the influence of landscape character and site features (natural and cultural) on landscape architecture, architecture and planning through application in the studio setting.
**Prerequisite:** LARC220, LARC265, LARC266, and LARC230.
**Corequisite:** LARC411 and LARC221.
**Restriction:** Must be in Landscape Architecture program; and sophomore standing or higher.
**Credit Only Granted for:** LARC340 or LARC231.
**Formerly:** LARC340.

**LARC388 Honors Thesis Research (3-6 Credits)**
Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.
**Prerequisite:** Must be in the AGNR Honors Program.
**Repeatable to:** 6 credits if content differs.

**LARC389 Internship in Landscape Architecture (3 Credits)**
A supervised internship where students earn credit for work experience related to their career goals. Each student must keep a work log, work on a special project, and produce a report related to this project. An evaluation from the external supervisor of the project is required. Participation requires application to the internship advisor in the preceding semester.
**Prerequisite:** LARC221; and LARC240; and LARC265.
**Restriction:** Must be in Landscape Architecture program; and junior standing or higher.
**Repeatable to:** 6 credits.

**LARC398 Seminar (1 Credit)**

**LARC411 Construction Technology I: Principles of Site Engineering (4 Credits)**
First of three courses in the landscape architecture engineering and construction sequence that focuses on the principles, procedures, and applications of site grading. Included in this subject area are the topics of relief visualization and representation, slope and contour calculations, grading objectives and methodology, structure siting principles, drainage principles, contour manipulation procedures, stormwater management, horizontal and vertical road alignment, and cut-fill calculations.
**Corequisite:** LARC231 or LARC641.
**Restriction:** Must be in Landscape Architecture program.
**Credit Only Granted for:** LARC320, LARC411 or LARC720.
**Formerly:** LARC320.

**LARC412 Construction Technology II: Materials and Structures (4 Credits)**
Second of three courses in the landscape architecture engineering and construction sequence focuses on site construction, soil and water-centric Best Design Practices (BDPs). Included in this subject area are the topics of construction operations and earthwork, soil erosion and sediment control, retaining wall, soil and constructed media, shoreline construction, bioretention and planting systems and green roofs
**Prerequisite:** LARC411.
**Corequisite:** LARC330 or LARC642.
**Restriction:** Must be in Landscape Architecture program.
**Credit Only Granted for:** LARC321, LARC412 or LARC721.
**Formerly:** LARC321.

**LARC413 Construction Technology III: Water Soil-Centric Practices (4 Credits)**
Third of three courses in the landscape architecture engineering and construction sequence focuses on site construction, soil and water-centric Best Design Practices (BDPs). Included in this subject area are the topics of construction operations and earthwork, soil erosion and sediment control, retaining wall, soil and constructed media, shoreline construction, bioretention and planting systems and green roofs.
**Prerequisite:** LARC412.
**Restriction:** Must be in Landscape Architecture program.

**LARC420 Professional Practice (3 Credits)**
An introduction to and comparative study of the professional concerns of design firms. Focus on planning, legal, ethical, marketing and management considerations of interdisciplinary practices.
**Prerequisite:** LARC321.
**Restriction:** Must be in Landscape Architecture program.

**LARC421 Computer-Aided Design and Drafting (CADD): Urban Construction (3 Credits)**
This Computer-Aided Design and Drafting (CADD) course applies computer drafting using AutoCAD. It focuses on providing the technical skills for students who are working in built environment professions. Drawing types may include (but not be limited to) site plan drawings, construction detailing, grading plans, site layout plans and sheet layout conventions.
**Credit Only Granted for:** LARC489O or LARC421.
**Formerly:** LARC489O.

**LARC430 Community Design Studio (5 Credits)**
Studio that emphasizes the integration of critical thinking skills and methodologies introduced throughout the landscape architecture curriculum. Students apply design and analysis methodologies, evaluate alternative solutions, involve community residents and engage in final design development, using the master plan and site design process, report writing, and oral and graphic presentations. Final presentations are open to the university and the community.
**Prerequisite:** LARC331 and LARC413; and must have completed or be concurrently enrolled in LARC420.
**Restriction:** Senior standing; and must be in Landscape Architecture program.

**LARC440 Urban Design Studio (5 Credits)**
The landscape architect's role within the interdisciplinary urban design process, focusing on urban site design issues. Pedestrian friendly site design and the future of sustainable development will be studied.
**Prerequisite:** LARC321; and LARC340; and LARC341.
**Restriction:** Must be in Landscape Architecture program.

**LARC451 Sustainable Communities (3 Credits)**
Explores concepts, strategies and examples of community design which address the needs of a growing population while preserving the environment and its resources.

**LARC452 Green Infrastructure and Community Greening (3 Credits)**
A critical look and exploration of green infrastructure (GI) elements in the built environment in contributing to ecosystems services and the sustainability of the built environment. The course explores the science, issues, challenges, and the policy, planning and design solutions offered by green infrastructure.
**Prerequisite:** PLSC110 and PLSC111; or (PLSC112 and PLSC113); or permission of instructor.
**Restriction:** Junior standing or higher.
**Credit Only Granted for:** LARC489G or LARC452.
**Formerly:** LARC489G.

**LARC453 Introduction to GIS and Hydrologic Modeling (3 Credits)**
Introduction to Geographic Information Systems (GIS) and their application to hydrologic modeling. Basic GIS skills are used to manipulate and analyze spatial data to populate NRCS TR-55 hydrologic model for use in sizing constructed wetlands, bio-retention cells, and minor flood zones. No prior knowledge of GIS or hydrologic modeling is required. Stormwater and erosion control permitting as well as basic design principles for Maryland Environmental Site Design standards are introduced.

**LARC454 Principles for Planting Design (3 Credits)**
Emphasis will be placed on the analysis of natural systems of the landscape as they relate to visual thinking and to the rigor of the design process. Planting Design will familiarize you with native habitats, reinforce the application of design principles, and assess human response to the built environment in terms of developing a planting scheme. Students will acquire an understanding of and an appreciation for complex, interdependent relationships that exist in a healthy plant community. Students will graphically represent planting plans as communication tools suitable for client and contractor discussion as well as the basic construction documentation process through plant schedules, details, technical specifications, soil analysis, cost estimating, site preparation, and landscape maintenance procedures.
**Prerequisite:** PLSC253 or equivalent; and LARC220 or LARC620.
**Restriction:** Permission of Landscape Architecture program; and must be in Landscape Architecture program; or permission of Landscape Architecture program.
**Credit Only Granted for:** LARC454 or LARC489E.
**Formerly:** LARC489E.

**LARC461 People and the Environment (3 Credits)**
Focus is placed on human and environmental interactions. Students will look at both natural and built environments and how they influence human health and well-being. Many environmental settings will be examined. These include hospitals, public housing neighborhoods, school settings, retirement communities, transportation corridors and green spaces. We will also explore how racial and socio-economic factors affect living and working environmental conditions. Ultimately, students will be using this knowledge to create environments that support individuals, families and various community groups' health and well-being.
**Credit Only Granted for:** LARC489K or LARC461.
**Formerly:** LARC489K.

**LARC470 Landscape Architecture Seminar (3 Credits)**
A combination of self-directed study, seminar, and lecture formats. An introduction to aspects of research methods, critical analysis, and proposal writing with a focus on urban and community design.
**Prerequisite:** LARC321; and LARC341.
**Corequisite:** LARC440.
**Restriction:** Senior standing; and must be in Landscape Architecture program.

**LARC471 Capstone Praxis Studio (5 Credits)**
A capstone experience with projects of varied thematic content that emphasize the integration of critical thinking skills and methodologies introduced throughout the landscape architecture curriculum. Students apply design and analysis methodologies, evaluate alternative solutions, involve community residents and engage in final design development, using the master plan and site design process, report writing, and oral and graphic presentations. Final presentations are open to the university and the community.
**Prerequisite:** LARC430.
**Restriction:** Senior standing; and must be in Landscape Architecture program.

**LARC489 Special Topics in Landscape Architecture (1-4 Credits)**
Credit according to time scheduled and organization of course. A lecture and/or studio course organized as an in-depth study of a selected specialization of landscape architecture not covered by existing courses.
**Prerequisite:** Permission of AGNR-Plant Science & Landscape Architecture department.
**Repeatable to:** 4 credits if content differs.

**LARC499 Independent Studies in Landscape Architecture (1-4 Credits)**
Independent studies in landscape architecture including field, studio or library research under the direction of a faculty member.
**Prerequisite:** 12 credits in LARC courses; or permission of AGNR-Plant Science & Landscape Architecture department.
**Restriction:** Must be in Landscape Architecture program; or must be in Plant Sciences program.
**Repeatable to:** 4 credits if content differs.

# LASX - Certificate in Latin American Studies Education Abroad

**LASX301 Human Rights and Cultural Representations (3 Credits)**
The cultural and human responses to the violence of genocide politics in the Holocaust will serve as an excellent start point to analyze political repression in Latin America (focus on Guatemala, Uruguay, Argentina and Chile). This course discusses not only the impact of trauma, the legacy of memory and the role of the national states during dictatorships in these countries, but also how to make these experiences productive to reconstruct selves and societies.
**Additional Information:** This course is offered as part of the Maryland-in-Buenos Aires study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/miba. Education Abroad processes registrations for this course on behalf of students.

# LATN - Latin

**LATN101 Elementary Latin I (4 Credits)**
**Additional Information:** A student who has two units of Latin in high school may register for LATN101 for the purposes of review, but ordinarily not for credit.

**LATN102 Elementary Latin II (4 Credits)**
**Prerequisite:** Must have completed LATN101 at University of Maryland, College Park; or permission of ARHU-Classics department.

**LATN120 Intensive Latin (4 Credits)**
Elements of Latin grammar and vocabulary; elementary reading. The first year's study of Latin compressed into a single semester.
**Prerequisite:** Permission of ARHU-Classics department.
**Restriction:** Must not have completed LATN102.

**LATN201 Intermediate Latin (4 Credits)**
**Prerequisite:** Must have completed LATN102 at University of Maryland, College Park; or permission of ARHU-Classics department.
**Formerly:** LATN203.

**LATN269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**LATN301 Plautus (3 Credits)**
Plautine drama. Literary, linguistic and socio-cultural aspects. Readings are in Latin.

**LATN302 Ovid (3 Credits)**
Major works of Ovidian poetry. Literary and moral atmosphere of Augustan age. Readings are in Latin.

**LATN303 Petronius (3 Credits)**
Reading and analysis of Petronius' Satyricon with an emphasis on the literary climate of the Neronian Age and on the emergence of the novel as a literary genre. Readings are in Latin.

**LATN304 Cicero and Sallust (3 Credits)**
Selected speeches of Cicero and selections from the historian Sallust. Rhetorical, social and political context. Readings are in Latin.
**Prerequisite:** LATN201; or students who have taken courses with comparable content may contact the department.

**LATN351 Horace and Catullus (3 Credits)**
Readings are in Latin.
**Prerequisite:** LATN201; or students who have taken courses with comparable content may contact the department.

**LATN369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**LATN386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.
**Restriction:** Junior standing or higher.

**LATN388 Special Topics in Latin Language and Literature (3 Credits)**
Readings in Latin at the intermediate level.
**Prerequisite:** LATN201; or permission of the department.
**Repeatable to:** 6 credits if content differs.

**LATN405 Lucretius (3 Credits)**
Readings are in Latin.

**LATN410 Latin Historians (3 Credits)**
Latin historical writing as a literary genre. Influences, style, and literary techniques. Readings are in Latin.

**LATN415 Vergil's Aeneid (3 Credits)**
Vergil's Aeneid: readings of selections in Latin and of the entire epic in English translation along with critical essays.
**Formerly:** LATN305.

**LATN472 Historical Development of the Latin Language (3 Credits)**
An analysis of the development of the Latin language from archaic times to the Middle Ages.
**Credit Only Granted for:** LATN472 or LING431.

**LATN488 Latin Readings (3 Credits)**
The reading of one or more selected Latin authors from antiquity through the Renaissance. Reports.
**Prerequisite:** Permission of ARHU-Classics department.
**Repeatable to:** 6 credits if content differs.
**Additional Information:** Readings are in Latin.

**LATN499 Independent Study in Latin Language and Literature (1-3 Credits)**
**Prerequisite:** Permission of ARHU-Classics department.
**Repeatable to:** 6 credits if content differs.

# LBSC - Library Science

**LBSC208 Special Topics in Information Studies (3 Credits)**
Special topics in aspects of information use, technology, and policy.
**Repeatable to:** 6 credits if content differs.

**LBSC386 Experiential Learning (3-6 Credits)**
**Restriction:** Junior standing or higher; and must have learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.

**LBSC499 Workshops, Clinics, and Institutes (1-9 Credits)**
Workshops, clinics, and institutes developed around specific topics or problems. Primarily for practicing librarians.
**Repeatable to:** 9 credits.

# LEAD - Leadership Education and Development

**LEAD217 Introduction to Leadership (3 Credits)**
Surveys the study and practice of leadership and provides students with a variety of experiences to wrestle with large leadership questions. What is leadership? Who can be a leader? How is leadership an important aspect of understanding self and others? Students will explore and respond to these questions through a variety of leadership theories and models, self-assessments, critical reflection, active-learning, group projects, and research. The course will introduce students to critical theory and critical perspectives of leadership to help students broaden their perspectives on leadership and develop more complex thought and practice of leadership.
**Restriction:** Freshman standing; or sophomore standing.
**Credit Only Granted for:** LEAD217 or HESI217.
**Formerly:** HESI217.

**LEAD305 Leadership and Ethics (3 Credits)**
Encourages students to explore the ethical demands of leadership. Through the examination of moral and ethical frameworks, students will develop their efficacy in analyzing multiple perspectives, decision-making, and navigating complexity. This course focuses on values-based leadership and one's responsibilities and commitments in the context of leadership for the common good and for purposeful change. The course assists students in identifying and examining ethical leadership as it relates to values, authenticity, context, controversy, and dilemmas.

**LEAD315 Leadership in Groups and Organizations (3 Credits)**
Assists students in acquiring and integrating leadership knowledge within group and organizational contexts. Individual (self), relational (others), and contextual (context) influences on leadership will be examined using theories and frameworks that will help students learn to navigate complex organizational environments and practice leadership that is process-based and relationship-oriented. Through hands-on activities, personal exploration, and critical analysis of leadership within groups and organizations, students will gain greater insight into the historical, cultural, and environmental elements of leadership.
**Prerequisite:** LEAD217 or HESI217.
**Credit Only Granted for:** LEAD315 or HESI315.
**Formerly:** HESI315.

**LEAD320 Social Action Seminar (2 Credits)**
The purpose of the Social Action Sequence (LEAD 320 & LEAD 321) is to examine the connections between leadership and social change, and learn how our own leadership knowledge and practice can be used to advance progress toward more just and equitable communities. In LEAD 320 (2-credits), students will have the opportunity to conduct a semester-long project to increase their knowledge and understanding of a social issue of their interest, and design resources and an action plan for engaging in work related to this social issue in their own communities.
**Prerequisite:** HESI217 or LEAD 217; and HESI315 or LEAD315.
**Restriction:** Must be in the Leadership Studies Minor or Leadership Studies Certificate program.
**Credit Only Granted for:** HESI320 or LEAD320.
**Formerly:** HESI320.
**Additional Information:** May fulfill a requirement for the Leadership Studies Certificate only if taken sequentially with LEAD321 course.

**LEAD321 Advanced Social Action Seminar (1 Credit)**
The purpose of the Social Action Sequence (LEAD 320 & LEAD 321) is to examine the connections between leadership and social change, and learn how our own leadership knowledge and practice can be used to advance progress toward more just and equitable communities. Together we will explore socially-responsible approaches to leadership as the groundwork for this sequence. In LEAD 321 (1-credit), students will implement their action plan for regular engagement in their community related to their chosen social issue, practicing leadership approaches and skills to advance social change within their spheres of influence.
**Prerequisite:** HESI217 or LEAD217; and HESI315 or LEAD315; and HESI320 or LEAD320.
**Restriction:** Must be in the Leadership Studies Minor or Leadership Studies Certificate program.
**Credit Only Granted for:** HESI321 or LEAD321.
**Formerly:** HESI321.
**Additional Information:** May fulfill a requirement for Leadership Studies Certificate only if taken sequentially with LEAD 320 course.

**LEAD417 Leadership Studies Capstone (3 Credits)**
As the final academic experience in the Leadership Studies Minor/Certificate, this seminar is designed to be both retrospective and integrative, encouraging you to synthesize relevant concepts and experiences and to formulate your own informed perspective on the implications of leadership. This course will serve as a place to critically think about the field of leadership studies and the implications of leadership in multiple settings for life-long practice. You will be expected to demonstrate skill in analysis of pertinent literature, write with purpose and clarity, facilitate the learning and development of others, and engage in thoughtful group discussion. In this seminar, you will submit scholarly products to demonstrate a mature understanding of your leadership trajectory in past, present and future contexts.
**Prerequisite:** HESI217 or LEAD217; and HESI315 or LEAD315.
**Restriction:** Permission of Counseling, Higher Education, and Special Education department required; Restricted to students in Leadership Studies Minor and Certificate only .
**Credit Only Granted for:** LEAD417 or HESI417.
**Formerly:** HESI417.

# LGBT - Lesbian Gay Bisexual Transgender Studies

**LGBT200 Introduction to Lesbian, Gay, Bisexual, and Transgender Studies (3 Credits)**
An interdisciplinary study of the historical and social contexts of personal, cultural and political aspects of LGBT life. Sources from a variety of fields, such as anthropology, history, psychology, sociology, and women's studies, focusing on writings by and about LGBT people.
**Credit Only Granted for:** LGBT200.

**LGBT264 Quare/Queer Contentions: Exploration of Sexualities in the Black Community (3 Credits)**
Centering the subjectivities of queer people of color generally and more specifically, Black people (as the word "quare" invites us to do), Quare/Queer Contentions takes up key moments within the history of the Black community and asks us to consider the work and presence of LGBTQ people in these moments. The course also contends with the everyday experiences of LGBTQ subjects in the Black community. Quare/Queer Contentions, therefore, interrogates the material realities of Black queer people in the context of family, religion, cultural/creative work, among others. Interdisciplinary in orientation, the course will employ primary and secondary texts, film, art, autobiographical narratives and policy data.
**Cross-listed with:** AASP264, WGSS264.
**Credit Only Granted for:** LGBT264, AASP264, WMST264 or WGSS264.

**LGBT265 LGBTQ+ Literatures and Media (3 Credits)**
A study of literary and cultural expressions of queer and trans identities, positionalities, and analytics through an exploration of literature, art, and media. We will examine historical and political power relations by considering the intersections of sexuality and gender with race, class, nation, and disability. Topics include the social construction and regulation of sexuality and gender, performance and performativity, intersectionality, and the relationship between aesthetic forms and queer/trans subjectivity. Our interpretations will be informed by queer and trans theories.
**Cross-listed with:** ENGL265.
**Restriction:** Must not have completed LGBT265.
**Credit Only Granted for:** ENGL265 or LGBT265.

**LGBT298 Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (3 Credits)**
Study of particular themes and issues in LGBT studies.
**Repeatable to:** 9 credits if content differs.

**LGBT310 Transgender Studies (3 Credits)**
Introduces students to the interdisciplinary field of transgender studies, providing a history of the field and engaging current debates within it. Students will explore the emergence and consolidation of trans identities, practices, cultures, and knowledges across medical, historical, sociological, cultural, and artistic contexts, paying particular attention to dynamics of race, class, and ability, to global and transnational difference, and to the implications of transgender studies for understanding gender and sexuality overall.
**Cross-listed with:** WGSS310.
**Credit Only Granted for:** LGBT310, WMST310 or WGSS310.

**LGBT327 Lesbian, Gay, Bisexual, and Transgender Film and Video (3 Credits)**
Comparative analysis of forms, themes, and the politics of representation in film and video by and/or about LGBT people.
**Cross-listed with:** ENGL359F.
**Restriction:** Junior standing or higher.
**Credit Only Granted for:** LGBT327 or ENGL359F.

**LGBT350 LGBTQ+ Public Speaking and Facilitation (3 Credits)**
Guides students through oral communication skills around LGBTQ+ topics. The course centers the experiences of minoritized intersectional LGBTQ+ communities, and students will use speaking, presentation, and facilitation skills to educate the UMD community about sexual orientation and gender identity and expression through panel discussions in classes, residence halls, and other university settings. Students who have received training for this purpose enter into these discussions prepared to disseminate accurate information, to answer questions that students, staff, and faculty may have about the realities of LGBTQ+ lives. Students will receive training that is rooted in queer theory and social justice education, building on the prerequisite course LGBT 200.
**Prerequisite:** LGBT200.
**Restriction:** Must have permission of LGBT Studies Program.

**LGBT359 Special Topics in LGBTQ+ Literatures and Media (3 Credits)**
Selected study of a topic pertinent to literary and cultural expressions of LGBTQ+ identities, positionalities, and analytics through an exploration of literature, art, and/or media.
**Cross-listed with:** ENGL359.
**Repeatable to:** 9 credits if content differs.

**LGBT386 Lesbian, Gay, Bisexual, and Transgender Community Organization Internship (3-6 Credits)**
Supervised internship experience with a community organization that expressly serves lesbian, gay, bisexual, and transgender people. Students will be expected to relate course material to experience in an analysis of an organization's activities.
**Prerequisite:** 9 credits in LGBT courses.
**Restriction:** Permission of LGBT Studies Program.

**LGBT398 Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (3 Credits)**
In-depth study of particular themes and issues in LGBT studies.
**Prerequisite:** LGBT200.
**Restriction:** Sophomore standing or higher.
**Repeatable to:** 9 credits if content differs.

**LGBT448 Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (3 Credits)**
In-depth study of particular themes and issues in LGBT studies.
**Prerequisite:** LGBT200; or permission of LGBT Studies Program.
**Restriction:** Junior standing or higher.
**Repeatable to:** 9 credits if content differs.

**LGBT448W Sex, Gender, and Jewish Identity (3 Credits)**
An exploration of Jewish embodiment, including dynamics related to biological sex, culturally-framed gender, and sexuality. Topics of discussion may include transgender and intersex Jews, stereotypes and gender performance, modesty, genetics, and body alteration. Focus is on contemporary Jewish culture, framed within the larger historical and textual tradition.
**Prerequisite:** 1 course in WGSS; or 1 course in JWST; or 1 course in LGBT; or permission of instructor.
**Cross-listed with:** JWST492, WGSS492.
**Credit Only Granted for:** JWST492, JWST409G, LGBT448W, WMST498W or WGSS492.
**Formerly:** WMST498W and JWST409G.

**LGBT459 Selected Topics in Sexuality and Literature (3 Credits)**
Detailed study of sexuality as an aspect of literary and cultural expression.
**Prerequisite:** Must have completed two lower-level English courses, at least one in literature.
**Repeatable to:** 9 credits if content differs.

**LGBT488 Seminar in Lesbian, Gay, Bisexual, and Transgender Studies (1-3 Credits)**
Developments in theories and methods of LGBT Studies, with emphasis upon interaction between the humanities and the social sciences in the elaboration of this interdisciplinary area of scholarship.
**Prerequisite:** 9 credits in LGBT courses; and permission of LGBT Studies Program.
**Recommended:** LGBT200. And ENGL265; or CMLT291.
**Repeatable to:** 9 credits if content differs.
**Formerly:** CMLT498Y.

**LGBT499 Independent Study (1-3 Credits)**
Directed research and analysis in LGBT Studies on a topic selected by the student.
**Prerequisite:** LGBT200; and permission of LGBT Studies Program.
**Restriction:** Senior standing.
**Repeatable to:** 6 credits if content differs.

# LGBX - Lesbian Gay Bisexual Transgender Studies Education Abroad

**LGBX200 Gender, Equality, and Sexuality in Scandinavia (3 Credits)**
Sweden is one of the most gender equal countries in the world and is well-known for its progressive culture supported by forward-thinking laws and legislation. This course explores how concepts of gender, body, sexuality and race intersect in current debates about changing family structures, children's rights, and new ethical dilemmas in a changing Scandinavia.
**Cross-listed with:** WMSX200.
**Credit Only Granted for:** WMSX200 or LGBX200.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**LGBX201 Sex Education and Sexual Reform in Europe (3 Credits)**
Provides insight to the ways in which sexual reform and sex education has shaped not only the history of sexuality in Europe, but also the very core of the various national identities. We will look into the different movements, campaigns, policies, and public debates regarding sexuality. We will discover the ways in which sex and sexuality are conveyed in sexual education aimed at children and youth by reading and watching examples of sex educational material.
**Cross-listed with:** WMSX201.
**Credit Only Granted for:** WMSX201 or LGBX201.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**LGBX202 Transgender in Scandinavia (3 Credits)**
This course explores the history of trans activism with a special focus on Sweden, and how legislative and medical discourses change how we think about gender identities and rights. We also explore topics such as transphobia, gender disclosure and HIV criminalization laws, reproductive rights, gender-neutral pronouns, transgender children and their families, and how race and class intersect with being trans.
**Cross-listed with:** WMSX202.
**Credit Only Granted for:** WMSX202 or LGBX202.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

# LING - Linguistics

**LING200 Introductory Linguistics (3 Credits)**
An exploration of the nature of human language. Introduction to the basic concepts and methodology of modern linguistic analysis (sound systems, word formation, sentence structure). Examination of the factors that contribute to dialect differences and the social implications of language variation. Additional topics may include: semantics, pragmatics, language change, writing systems, typology, language universals, comparison with other communication systems.
**Credit Only Granted for:** HESP120 or LING200.
**Additional Information:** This course serves as the prerequisite for further courses in linguistics.

**LING240 Language and Mind (3 Credits)**
The study of language as a cognitive phenomenon. Ways of representing people's knowledge of their native language, ways in which that knowledge is attained naturally by children, and how it is used in speaking and listening. Additional topics may include: animal communication, language and the brain, language and thought.
**Prerequisite:** Minimum grade of C- in LING200.
**Additional Information:** Required for Linguistics majors and recommended for students in related fields.

**LING248 Introduction to Laboratory Research in Linguistics (2-3 Credits)**
Individualized, collaborative research course aimed at developing skills for laboratory research in language acquisition, sentence processing or neurolinguistics. Learning to conduct research in laboratory linguistics as part of a research team that will create original research in the field.
**Recommended:** LING200 or LING240.
**Restriction:** Permission of instructor.
**Repeatable to:** 6 credits if content differs.
**Additional Information:** A two-semester commitment is required, i.e. Ling248 is followed by Ling448.

**LING260 Meaning through Language: Why are we so good at it? (3 Credits)**
What is it about us humans and our languages that allows us to communicate in ways unmatched by other animals or powerful AI models? The question is ancient, but recent decades have seen great progress in the cognitive science of language, while expanding the diversity of languages investigated. We know much more about how languages vary, how they develop in children, how they are encoded in the mind, and relate to other domains of cognition. Major developments in statistical computation and research on animal cognition also illuminate what is (not) possible without the particular structure of the human mind. We bring this all to bear on our Big Question: What makes human language special from the viewpoint of meaning? Students will come to understand the major features of language as a vehicle for complex thought and a tool for communication. They will use this understanding in analyzing common semantic patterns and everyday conversational dynamics.

**LING262 HERITAGE LANGUAGES AND THEIR SPEAKERS (3 Credits)**
An interdisciplinary examination of the phenomenon of heritage language (a bilingual's home language which is distinct from the dominant language of the wider society). Relationship between linguistic structure, cultural and social aspects of language use, and language change. Interpretations of experimental and theoretical work. Relevance of heritage languages for linguistic theory, language policy, and education.
**Additional Information:** One class per week will be in-field instruction in collecting data from heritage speakers.

**LING269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**LING272 Biophysics of Language (3 Credits)**
Examines the nature of mental representation of language in the physiology of the mind/brain, how it evolved, how it emerges in learners' minds, and how it decays through injury and illness. Insights from linguistics, cognitive psychology, neuroscience, animal behavior, molecular biology, and biophysics are brought to bear on how an abstract systematic behavior can arise within an animal brain.

**LING311 Syntax I (3 Credits)**
Basic concepts, analytical techniques of generative syntax, relation to empirical limits imposed by viewing grammars as representations of a component of human mind. Aspects of current theories.
**Prerequisite:** LING240.

**LING312 Syntax II (3 Credits)**
Continuation of LING311. Development of theories of syntax. Criteria for revising theories. Methods and strategies of scientific efforts to explain natural phenomena.
**Prerequisite:** LING311.

**LING320 Phonetics (3 Credits)**
Representations and models of acoustic and articulatory phonetics. Develops concepts and skills for description, measurement and scientific analysis of the sound systems of human languages, including various varieties of English.
**Prerequisite:** Minimum grade of C- in LING200 or LING240.
**Additional Information:** This course counts as a core course for the linguistics major. Only one of Ling320 or HESP403 can be used to count towards the Linguistics major.

**LING321 Phonology I (3 Credits)**
Properties of sound systems of human languages, basic concepts and analytical techniques of generative phonology. Empirical limits imposed by viewing grammars as cognitive representations. Physiological properties and phonological systems; articulatory phonetics and distinctive feature theory.
**Prerequisite:** LING240.

**LING322 Phonology II (3 Credits)**
Continuation of LING321. Further investigation of phonological phenomena and phonological theory. Revising and elaborating the theory of the phonological representation; interaction of phonology and morphology.
**Prerequisite:** LING321.

**LING330 Historical Linguistics (3 Credits)**
A traditional presentation of language change. Language types and families, sounds and writing systems, grammatical categories. Reconstruction of proto-languages by internal and comparative methods.
**Prerequisite:** LING321.
**Recommended:** LING311.

**LING350 Philosophy of Language (3 Credits)**
The nature and function of language and other forms of symbolism from a philosophical perspective.
**Prerequisite:** LING311; or 2 courses in PHIL and (PHIL170 or PHIL370); or permission of ARHU-Philosophy department.
**Cross-listed with:** PHIL360.
**Credit Only Granted for:** LING350 or PHIL360.

**LING369 Special Topics in Study Abroad (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**LING386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.
**Restriction:** Junior standing or higher.

**LING410 Grammar and Meaning (3 Credits)**
The basic notions of semantic theory: reference, quantification, scope relations, compositionality, thematic relations, tense and time, etc. The role these notions play in grammars of natural languages. Properties of logical form and relationship with syntax.
**Prerequisite:** Permission of instructor; or LING311.

**LING419 Topics in Syntax (3 Credits)**
Topics vary.
**Prerequisite:** LING311.
**Repeatable to:** 12 credits if content differs.

**LING420 Word Formation (3 Credits)**
Examination of shape and meaning of possible words, both across languages and within particular languages. Interaction between principles of word formation and other components of a grammar: syntax, logical form and phonology.
**Prerequisite:** LING321 and LING311.

**LING429 Topics in Phonology (3 Credits)**
Advanced seminar in phonology. Topics vary.
**Prerequisite:** LING322.
**Repeatable to:** 6 credits if content differs.

**LING439 Topics in Diachronic Linguistics (3 Credits)**
**Repeatable to:** 6 credits if content differs.

**LING440 Grammars and Cognition (3 Credits)**
Relationship between the structure, development and functioning of grammars and the structure, development and functioning of other mental systems. Interpretations of experimental and observational work on children's language, aphasia, speech production and comprehension.
**Prerequisite:** LING321 and LING311.

**LING444 Child Language Acquisition (3 Credits)**
Examines language acquisition in infancy and early childhood: the nature of children's linguistic representations and how these develop naturally. Role of (possible) innate linguistic structure and interaction of such structure with experience. Evaluation of methods and results of current and classic research leading to contemporary models of language development.
**Prerequisite:** LING311.

**LING448 Advanced Laboratory Research in Linguistics (2-3 Credits)**
Individualized, collaborative research course aimed at developing skills for laboratory research in language acquisition, sentence processing or neurolinguistics. Conducting a research project in laboratory linguistics as part of a team creating original research relevant to current issues in linguistics.
**Prerequisite:** LING248; and (LING200 or LING240).
**Restriction:** Permission of instructor.
**Repeatable to:** 6 credits if content differs.
**Additional Information:** This course is part of a two-semester sequence. Ling248 is a prerequisite. Ling248 and Ling448 must be completed in the same laboratory.

**LING449 Topics in Psycholinguistics (3 Credits)**
Critical evaluation of primary research in psycholinguistics. Relating theoretical hypotheses to experimental hypotheses and predictions. Evaluation of experimental results. Emphasis on hands-on experience and experimental methodologies. Specific topics vary.
**Prerequisite:** LING321 and LING311; or permission of ARHU-Linguistics department.
**Repeatable to:** 6 credits if content differs.

**LING451 Grammars and Variation (3 Credits)**
Grammars and the use of language in a variety of styles: formal, casual, literary, etc. Consequences for concepts of grammars. Variation theory. Literary styles.
**Prerequisite:** LING311.

**LING460 Diversity and Unity in Human Languages (3 Credits)**
Fundamentals of grammatical typology as they relate to issues in social attitudes towards language. Linguistic structure of standard and non-standard languages and dialects. Relationship of different writing systems to linguistic structure. Issues in bilingualism and multilingualism.
**Prerequisite:** LING240 or LING200.

**LING499 Directed Studies in Linguistics (1-3 Credits)**
Independent study or research on language under the supervision of a faculty member.
**Prerequisite:** Permission of ARHU-Linguistics department.
**Repeatable to:** 6 credits if content differs.

# MATH - Mathematics

**MATH107 Introduction to Math Modeling and Probability (3 Credits)**
A goal is to convey the power of mathematics as shown by a variety of problems which can be modeled and solved by quantitative means. Also included is an introduction to probability. Topics include data analysis, equations, systems of equations, inequalities, elementary linear programming, Venn diagrams, counting, basic probability, permutations, combinations, tree diagrams, standard normal and normal distributions. The mathematics of finance is covered. The course includes problem solving and decision making in economics, management, and social sciences.
**Prerequisite:** Must have math eligibility of MATH107 or higher; and math eligibility is based on Math Placement Exam or successful completion of MATH003 with appropriate eligibility.
**Restriction:** Not open to students majoring in mathematics, engineering, business, life sciences, and the physical sciences; must not have completed STAT100, MATH113, MATH120, MATH135, MATH136 or MATH140 with a C- or better; must not have completed any MATH or STAT course with a prerequisite of MATH120, MATH136, or MATH140.
**Formerly:** MATH110 and MATH111.

**MATH113 College Algebra and Trigonometry (3 Credits)**
Topics include elementary functions including graphs and applications of: polynomial, rational, exponential, and logarithmic functions. Systems of equations and applications. Trigonometric functions: angle and radian measure, graphs and applications.
**Prerequisite:** Must have math eligibility of MATH113 or higher; and math eligibility is based on the Math Placement Exam or the successful completion of MATH 003 with appropriate eligibility.
**Restriction:** Must not have completed MATH115, MATH120, MATH135, MATH136 or MATH140 with a grade of C- or higher; and must not have completed any course with a prerequisite of MATH120, MATH130, MATH136, or MATH140.
**Credit Only Granted for:** MATH113 or MATH115.

**MATH115 Precalculus (3 Credits)**
Preparation for MATH120, MATH130 or MATH140. Elementary functions and graphs: polynomials, rational functions, exponential and logarithmic functions, trigonometric functions. Algebraic techniques preparatory for calculus.
**Prerequisite:** Must have math eligibility of MATH115 or higher; and math eligibility is based on the Math Placement Exam or the successful completion of MATH003 with appropriate eligibility. Or MATH113.
**Restriction:** Must not have completed MATH140 with a grade of C- or better; and must not have completed any MATH or STAT course with a prerequisite of MATH140 or MATH141.
**Credit Only Granted for:** MATH113 or MATH115.

**MATH120 Elementary Calculus I (3 Credits)**
Basic ideas of differential and integral calculus, with emphasis on elementary techniques of differentiation and applications.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH113, MATH115). Or must have math eligibility of MATH120 or higher; and math eligibility is based on the Math Placement Test.
**Restriction:** Not open to students majoring in mathematics, engineering, the biological sciences, biochemistry, chemistry, or the physical sciences; Must not have completed MATH130, MATH136 or MATH140 with a grade of C- or higher.
**Formerly:** MATH220.

**MATH121 Elementary Calculus II (3 Credits)**
Trigonometric functions, techniques of integration, infinite series, differential equations, probability.
**Prerequisite:** MATH120, MATH130, MATH136, or MATH140.
**Restriction:** Not open to students majoring in mathematics, engineering, the biological sciences, biochemistry, chemistry, or the physical sciences; Must not have completed MATH141 with a grade of C- or higher.
**Formerly:** MATH221.

**MATH130 Calculus I for the Life Sciences (4 Credits)**
Basic ideas of differential integral calculus, with emphasis on elementary techniques and applications to the life sciences.
**Prerequisite:** Minimum grade of C- in MATH115.
**Restriction:** Must be in a major in CMNS-Biological Sciences UG Program; and not open to students majoring in mathematics, engineering, or the physical sciences.
**Credit Only Granted for:** MATH120, MATH130, MATH220, or MATH140.

**MATH135 Discrete Mathematics for Life Sciences (4 Credits)**
Basic discrete mathematics, with emphasis on relevant models and techniques to the life sciences.
**Prerequisite:** Minimum grade of C- in MATH113 or MATH115; or must have math eligibility of MATH120 or higher; and math eligibility is based on the Math Placement Test.
**Restriction:** Must be in the Biological Sciences or Neuroscience major; and not open to students majoring in mathematics, engineering, or the physical sciences.

**MATH136 Calculus for Life Sciences (4 Credits)**
Continuation of MATH135, including basic ideas of differential and integral calculus, with emphasis on elementary techniques and applications to the life sciences.
**Prerequisite:** Minimum grade of C- in MATH135.
**Restriction:** Must be in the Biological Sciences or Neuroscience major; Must not have completed MATH140 with a grade of C- or higher.

**MATH140 Calculus I (4 Credits)**
Introduction to calculus, including functions, limits, continuity, derivatives and applications of the derivative, sketching of graphs of functions, definite and indefinite integrals, and calculation of area. The course is especially recommended for science, engineering and mathematics majors.
**Prerequisite:** Minimum grade of C- in MATH115.

**MATH141 Calculus II (4 Credits)**
Continuation of MATH140, including techniques of integration, improper integrals, applications of integration (such as volumes, work, arc length, moments), inverse functions, exponential and logarithmic functions, sequences and series.
**Prerequisite:** Minimum grade of C- in MATH140.

**MATH199 Special Topics in Mathematics (3 Credits)**
Many games have a mathematical component. We will introduce several games, play them, and investigate the underlying mathematics. Students will work in teams on projects that involve developing strategies for new games.
**Prerequisite:** Permission of CMNS-Mathematics department.

**MATH206 Introduction to Matlab (1 Credit)**
This course is intended to prepare students for subsequent courses requiring computation with MATLAB. Covers basics of MATLAB including simple commands, variables, solving equations, graphing differentiation and integration, matrices and vectors, functions, M-files and fundamentals of programming in the MATLAB environment. When offered in Winter and Summer terms, the course is offered in a format suitable for online distance learning.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH136, MATH140).

**MATH212 Elements of Numbers and Operations (3 Credits)**
Reviews and extends topics of arithmetic and number theory related to the elementary school curriculum, particularly number systems and operations with natural numbers, integers, and rationals.
**Prerequisite:** Must have completed one year of college preparatory algebra.
**Restriction:** Must be in one of the following programs (Early Childhood Education; Special Education; Elementary Education).

**MATH213 Elements of Geometry and Measurement (3 Credits)**
Properties of geometric objects in two and three dimensions; parallel lines, curves and polygons; ratio, proportion, similarity; transformational geometry and measurement, constructions, justifications and proofs.
**Prerequisite:** MATH212.
**Restriction:** Must be in one of the following programs (Early Childhood Education; Special Education; Elementary Education).

**MATH214 Elements of Probability and Statistics (3 Credits)**
Permutations and combinations; probability; collecting and representing data; using statistics to analyze and interpret data.
**Prerequisite:** MATH212.
**Restriction:** Must be in one of the following programs (Early Childhood Education; Special Education; Elementary Education).

**MATH240 Introduction to Linear Algebra (4 Credits)**
Basic concepts of linear algebra: vector spaces, applications to line and plane geometry, linear equations and matrices, similar matrices, linear transformations, eigenvalues, determinants and quadratic forms.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH131, MATH141).
**Credit Only Granted for:** MATH240, MATH341, or MATH461.

**MATH241 Calculus III (4 Credits)**
Introduction to multivariable calculus, including vectors and vector-valued functions, partial derivatives and applications of partial derivatives (such as tangent planes and Lagrange multipliers), multiple integrals, volume, surface area, and the classical theorems of Green, Stokes and Gauss.
**Prerequisite:** Minimum grade of C- in MATH141.
**Credit Only Granted for:** MATH241 or MATH340.

**MATH243 Introduction to Linear Algebra and Differential Equations (4 Credits)**
The basics of linear algebra and differential equations, with an emphasis on general physical and engineering applications. Aimed at students who need the material for future coursework but do not need as much depth and rigor as provided by MATH240 and MATH246.
**Prerequisite:** Minimum grade of C- in MATH141.
**Credit Only Granted for:** ENEE290 or MATH243.
**Additional Information:** Does not satisfy requirements for the Mathematics major. Does not satisfy prerequisite requirements for courses requiring MATH240 or MATH246.

**MATH246 Differential Equations for Scientists and Engineers (3 Credits)**
An introduction to the basic methods of solving ordinary differential equations. Equations of first and second order, linear differential equations, Laplace transforms, numerical methods and the qualitative theory of differential equations.
**Prerequisite:** Minimum grade of C- in MATH141.
**Credit Only Granted for:** MATH246 or MATH341.

**MATH274 History of Mathematics (3 Credits)**
An overview of aspects in the history of mathematics from its beginning in the concrete problem solving of ancient times through the development of abstraction in the 19th and 20th centuries. The course considers both mathematical ideas and the context in which they developed in various civilizations around the world.
**Prerequisite:** MATH120, MATH130, MATH136, or MATH140; or must have completed MATH220.

**MATH299 Selected Topics in Mathematics (1-3 Credits)**
Topics of special interest under the general guidance of the departmental committee on undergraduate studies.
**Prerequisite:** Permission of CMNS-Mathematics department.

**MATH310 Introduction to Mathematical Proof (3 Credits)**
To develop the students' ability to construct a rigorous proof of a mathematical claim. Students will also be made aware of mathematical results that are of interest to those wishing to analyze a particular mathematical model. Topics will be drawn from logic, set theory, structure of the number line, elementary topology, metric spaces, functions, sequences and continuity.
**Prerequisite:** Minimum grade of C- in MATH141; and must have completed or be concurrently enrolled in MATH240, MATH341, or MATH461; and must have completed or be concurrently enrolled in MATH241 or MATH340.
**Restriction:** Must be in a major within the CMNS-Mathematics department; or permission of the CMNS-Mathematics department.
**Additional Information:** Math majors may not use this course to satisfy an upper-level requirement.

**MATH312 Mathematical Reasoning and Proof for Pre-Service Middle School Teachers (3 Credits)**
Reasoning and proof as addressed in the middle school curriculum. Topics include proportional reasoning, logic and proof, types of numbers, field axioms, Euclidean and non-Euclidean geometry.
**Prerequisite:** MATH212 and MATH213.
**Restriction:** Must be in one of the following programs (Elementary Education; Special Education; Middle School Education).

**MATH314 Introduction to Probability, Data, Analysis and Statistics for Preservice Middle School Teachers (3 Credits)**
Analysis of bivariate data, probability and randomness, law of large numbers, central limit theorem, probabilities for independent and dependent events, counting techniques, random variables and probability distributions, expected values, sampling distributions, and confidence intervals.
**Prerequisite:** MATH214.
**Restriction:** Must be in one of the following programs (Elementary Education; Special Education; Middle School Education).
**Credit Only Granted for:** MATH314 or STAT100.

**MATH315 Algebra for Preservice Middle School Teachers (3 Credits)**
Algebraic concepts and techniques developed in the middle grades, with their larger mathematical context. Equations, inequalities and functions (linear, polynomial, exponential, logarithmic), with multiple representations of relationships. Common misconceptions of beginning algebra students.
**Prerequisite:** MATH212.
**Restriction:** Must be in one of the following programs (Elementary Education; Special Education; Middle School Education).
**Credit Only Granted for:** MATH113 or MATH315.

**MATH340 Multivariable Calculus, Linear Algebra and Differential Equations I (Honors) (4 Credits)**
First semester of the MATH340-341 sequence which gives a unified and enriched treatment of multivariable calculus, linear algebra and ordinary differential equations, with supplementary material from subjects such as differential geometry, Fourier series and calculus of variations. Students completing MATH340-341 will have covered the material of MATH240, MATH241, and MATH246, and may not also receive credit for MATH240, MATH241 or MATH246.
**Prerequisite:** MATH141 and MATH140; and permission of CMNS-Mathematics department; and permission will be granted only to incoming freshmen.
**Credit Only Granted for:** MATH241 or MATH340.

**MATH341 Multivariable Calculus, Linear Algebra, Differential Equations II (Honors) (4 Credits)**
A continuation of MATH340.
**Prerequisite:** Minimum grade of C- in MATH340.
**Restriction:** Open to second semester Freshmen only.
**Credit Only Granted for:** MATH240, MATH246, MATH341 or MATH461.

**MATH386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Must have learning proposal approved by the CMNS Mathematics Department.

**MATH401 Applications of Linear Algebra (3 Credits)**
Various applications of linear algebra: theory of finite games, linear programming, matrix methods as applied to finite Markov chains, random walk, incidence matrices, graphs and directed graphs, networks and transportation problems.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH461, MATH240, MATH341).

**MATH402 Algebraic Structures (3 Credits)**
For students having only limited experience with rigorous mathematical proofs. Parallels MATH403. Students planning graduate work in mathematics should take MATH403. Groups, rings, integral domains and fields, detailed study of several groups; properties of integers and polynomials. Emphasis is on the origin of the mathematical ideas studied and the logical structure of the subject.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461).
**Restriction:** Must not be in any of the following programs (Mathematics (Master's); Mathematics (Doctoral)).
**Credit Only Granted for:** MATH402 or MATH403.

**MATH403 Introduction to Abstract Algebra (3 Credits)**
Integers; groups, rings, integral domains, fields.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH461, MATH340); and 1 course with a minimum grade of C- from (MATH341, MATH241); and minimum grade of C- in MATH310. Or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** MATH402 or MATH403.

**MATH404 Field Theory (3 Credits)**
Algebraic and transcendental elements, Galois theory, constructions with straight-edge and compass, solutions of equations of low degrees, insolubility of the quintic equation, Sylow theorems, fundamental theorem of finite Abelian groups.
**Prerequisite:** Minimum grade of C- in MATH403.

**MATH405 Linear Algebra (3 Credits)**
An abstract treatment of finite dimensional vector spaces. Linear transformations and their invariants.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and minimum grade of C- in MATH310.

**MATH406 Introduction to Number Theory (3 Credits)**
Integers, divisibility, prime numbers, unique factorization, congruences, quadratic reciprocity, Diophantine equations and arithmetic functions.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH241, MATH246, MATH340, MATH341, MATH461); or permission of CMNS-Mathematics department.

**MATH410 Advanced Calculus I (3 Credits)**
Subjects covered: sequences and series of numbers, continuity and differentiability of real-valued functions of one variable, the Riemann integral, sequences of functions and power series.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and 1 course with a minimum grade of C- from (MATH340, MATH241); and minimum grade of C- in MATH310.

**MATH411 Advanced Calculus II (3 Credits)**
Continuation of MATH410. Topics include: The topology of sets in Rn, the derivative matrix, the general chain rule, inverse and implicit function theorems with applications, smooth curves and surfaces in R3, Lagrange multipliers. Additional topics may include: Metric spaces, the contraction principle, the existence and uniqueness theorem for nonlinear first order differential equations, the Riemann integral of Rn, introduction to integration on curves and surfaces, Green's theorem.
**Prerequisite:** Minimum grade of C- in MATH410; and permission of CMNS-Mathematics department.

**MATH416 Applied Harmonic Analysis: An Introduction to Signal Processing (3 Credits)**
Introduces students to the mathematical concepts arising in signal analysis from the applied harmonic analysis point of view. Topics include applied linear algebra, Fourier series, discrete Fourier transform, Fourier transform, Shannon Sampling Theorem, wavelet bases, multiresolution analysis, and discrete wavelet transform.
**Prerequisite:** Minimum grade of C- in MATH141; and 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and familiarity with MATLAB is required.

**MATH420 Mathematical Modeling (3 Credits)**
The course will develop skills in data-driven mathematical modeling through individual and group projects. Emphasis will be placed on both analytical and computational methods, and on effective oral and written presentation of results.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and 1 course with a minimum grade of C- from (MATH241, MATH340); and 1 course with a minimum grade of C- from (MATH246, MATH341); and 1 course with a minimum grade of C- from (STAT400, STAT410); and 1 course with a minimum grade C- from (CMSC106, CMSC131).
**Cross-listed with:** AMSC420.
**Credit Only Granted for:** AMSC420 or MATH420.

**MATH423 Linear Optimization (3 Credits)**
Mathematical formulation of linear programming, graphical solutions, simplex method, duality, transportation problems, assignment problems, and game theory.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH401, MATH461, or MATH341).
**Credit Only Granted for:** MATH423 or MATH498T.
**Formerly:** MATH498T.

**MATH424 Introduction to the Mathematics of Finance (3 Credits)**
Introduction to the mathematical models used in finance and economics with emphasis on pricing derivative instruments. Designed for students in mathematics, computer science, engineering, finance and physics. Financial markets and instruments; elements from basic probability theory; interest rates and present value analysis; normal distribution of stock returns; option pricing; arbitrage pricing theory; the multiperiod binomial model; the Black-Scholes option pricing formula; proof of the Black-Scholes option pricing formula and applications; trading and hedging of options; Delta hedging; utility functions and portfolio theory; elementary stochastic calculus; Ito's Lemma; the Black-Scholes equation and its conversion to the heat equation.
**Prerequisite:** Minimum grade of C- in MATH141; and 1 course with a minimum grade of C- from (STAT400, STAT410); and permission of CMNS-Mathematics department.
**Recommended:** MATH246, MATH240, MATH241, MATH340, or MATH341.
**Credit Only Granted for:** BMGT444, MATH424.

**MATH430 Euclidean and Non-Euclidean Geometries (3 Credits)**
Hilbert's axioms for Euclidean geometry. Neutral geometry: the consistency of the hyperbolic parallel postulate and the inconsistency of the elliptic parallel postulate with neutral geometry. Models of hyperbolic geometry. Existence and properties of isometries.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461).

**MATH431 Geometry for Computer Applications (3 Credits)**
Topics from projective geometry and transformation geometry, emphasizing the two-dimensional representation of three-dimensional objects and objects moving about in the plane and space. The emphasis will be on formulas and algorithms of immediate use in computer graphics.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH461, MATH240, MATH341).

**MATH432 Introduction to Topology (3 Credits)**
Metric spaces, topological spaces, connectedness, compactness (including Heine-Borel and Bolzano-Weierstrass theorems), Cantor sets, continuous maps and homeomorphisms, fundamental group (homotopy, covering spaces, the fundamental theorem of algebra, Brouwer fixed point theorem), surfaces (e.g., Euler characteristic, the index of a vector field, hairy sphere theorem), elements of combinatorial topology (graphs and trees, planarity, coloring problems).
**Prerequisite:** Minimum grade of C- in MATH410.

**MATH436 Differential Geometry of Curves and Surfaces I (3 Credits)**
Curves in the plane and Euclidean space, moving frames, surfaces in Euclidean space, orientability of surfaces; Gaussian and mean curvatures; surfaces of revolution, ruled surfaces, minimal surfaces, special curves on surfaces, "Theorema Egregium"; the intrinsic geometry of surfaces.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH241, MATH340); and 1 course with a minimum grade of C- from (MATH461, MATH240, MATH341); and must have completed two 400-level MATH courses with a minimum grade of C- (not including MATH461, and 480's).

**MATH437 Differential Forms (3 Credits)**
Introduction to differential forms and their applications, and unites the fundamental theorems of multivariable calculus in a general Stokes Theorem that is valid in great generality. It develops this theory and technique to perform calculations in analysis and geometry. Topics include an introduction to topological spaces, the Gauss-Bonnet Theorem, Gauss's formula for the linking number, and the Cauchy Integral Theorem. Applications include Maxwell's equations of electromagnetism, connections and gauge theory, and symplectic geometry and Hamiltonian dynamics.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH241, MATH340); and 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461).
**Recommended:** MATH405, MATH403, MATH436, MATH410, or MATH432.

**MATH445 Elementary Mathematical Logic (3 Credits)**
Elementary development of propositional and predicate logic, including semantics and deductive systems and with a discussion of completeness, incompleteness and the decision problem.
**Prerequisite:** Minimum grade of C- in MATH141.

**MATH446 Axiomatic Set Theory (3 Credits)**
Development of a system of axiomatic set theory, choice principles, induction principles, ordinal arithmetic including discussion of cancellation laws, divisibility, canonical expansions, cardinal arithmetic including connections with the axiom of choice, Hartog's theorem, Konig's theorem, properties of regular, singular and inaccessible cardinals.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH403, MATH410).

**MATH452 Introduction to Dynamics and Chaos (3 Credits)**
An introduction to mathematical dynamics and chaos. Orbits, bifurcations, Cantor sets and horseshoes, symbolic dynamics, fractal dimension, notions of stability, flows and chaos. Includes motivation and historical perspectives, as well as examples of fundamental maps studied in dynamics and applications of dynamics.
**Prerequisite:** MATH341; or MATH246 and one of (MATH240 or MATH461).
**Cross-listed with:** AMSC452.
**Credit Only Granted for:** AMSC452 or MATH452.

**MATH456 Cryptography (3 Credits)**
The theory, application, and implementation of mathematical techniques used to secure modern communications. Topics include symmetric and public-key encryption, message integrity, hash functions, block-cipher design and analysis, number theory, and digital signatures.
**Prerequisite:** (CMSC106, CMSC131, or ENEE150; or equivalent programming experience); and (2 courses from (CMSC330, CMSC351, ENEE324, or ENEE380); or any one of these courses and a 400-level MATH course, or two 400-level MATH courses); and Permission of CMNS-Mathematics department or permission of instructor.
**Cross-listed with:** CMSC456, ENEE456.
**Credit Only Granted for:** MATH456, CMSC456 or ENEE456.

**MATH461 Linear Algebra for Scientists and Engineers (3 Credits)**
Basic concepts of linear algebra. This course is similar to MATH240, but with more extensive coverage of the topics needed in applied linear algebra: change of basis, complex eigenvalues, diagonalization, the Jordan canonical form.
**Prerequisite:** Minimum grade of C- in MATH141; and must have completed a MATH or STAT course with a prerequisite of MATH141.
**Credit Only Granted for:** MATH240, MATH341, or MATH461.
**Additional Information:** This course may not be used towards the upper level math requirements for MATH/STAT majors.

**MATH462 Partial Differential Equations (3 Credits)**
Linear spaces and operators, orthogonality, Sturm-Liouville problems and eigenfunction expansions for ordinary differential equations. Introduction to partial differential equations, including the heat equation, wave equation and Laplace's equation. Boundary value problems, initial value problems and initial-boundary value problems.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH241, MATH340); and 1 course with a minimum grade of C- from (MATH246, MATH341).

**MATH463 Complex Variables (3 Credits)**
The algebra of complex numbers, analytic functions, mapping properties of the elementary functions. Cauchy integral formula. Theory of residues and application to evaluation of integrals. Conformal mapping.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH241, MATH340).

**MATH464 Transform Methods (3 Credits)**
Fourier transform, Fourier series, discrete fast Fourier transform (DFT and FFT). Laplace transform. Poisson summations, and sampling. Optional Topics: Distributions and operational calculus, PDEs, Wavelet transform, Radon transform and applications such as Imaging, Speech Processing, PDEs of Mathematical Physics, Communications, Inverse Problems.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH246, MATH341).

**MATH470 Mathematics for Secondary Education (3 Credits)**
An advanced perspective on some of the core mathematics underlying high school mathematics courses. Topics include number systems, functions of one variable, equations, inequalities, trigonometric functions, curve fitting, and polynomials. The course includes an analysis of alternate approaches to mathematical ideas and problems, and makes connections between ideas that may have been studied separately in different high school and college courses.
**Prerequisite:** MATH141 and MATH140; and must have completed one 400-level MATH course (not to include MATH461, 478, and 480's).
**Restriction:** Must be in the Secondary Math Education major.

**MATH475 Combinatorics and Graph Theory (3 Credits)**
General enumeration methods, difference equations, generating functions. Elements of graph theory, matrix representations of graphs, applications of graph theory to transport networks, matching theory and graphical algorithms.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461); and 1 course with a minimum grade of C- from (MATH241, MATH340); and permission of CMNS-Mathematics department. Cross-listed with CMSC475.
**Credit Only Granted for:** MATH475 or CMSC475.

**MATH478 Selected Topics For Teachers of Mathematics (1-3 Credits)**
**Prerequisite:** Permission of CMNS-Mathematics department.
**Additional Information:** Math majors may not use this course to fulfill the upper-level math requirement.

**MATH480 Algebra for Middle School Teachers (3 Credits)**
Prepares teachers with elementary certification to teach Algebra 1 in middle school. Focuses on basic algebra concepts and related theoretical ideas.
**Prerequisite:** MATH214.
**Restriction:** Must be a middle school teacher; and permission of CMNS-Mathematics department.
**Credit Only Granted for:** MATH480 or MATH483.
**Additional Information:** Not applicable to MATH/STAT major or minor requirements.

**MATH481 Statistics and Data Analysis for Middle School Teachers (3 Credits)**
Prepares teachers with elementary certification to teach simple data analysis and probability in middle school. Focuses on understanding basic statistics, data analysis, and related theoretical ideas.
**Prerequisite:** MATH214.
**Restriction:** Must be a middle school teacher; and permission of CMNS-Mathematics department.
**Credit Only Granted for:** MATH481 or MATH485.
**Additional Information:** Not applicable to MATH/STAT major or minor requirements.

**MATH484 Geometry for High School Teachers (3 Credits)**
Focuses on concepts related to geometry, including several geometry axiom schemes, transformations, and similarity. Includes constructions with Geometer's Sketchpad.
**Prerequisite:** MATH141; or students who have taken courses with comparable content may contact the department.
**Restriction:** Senior standing.
**Credit Only Granted for:** MATH482, MATH484, or MATH498E.
**Formerly:** MATH498E.

**MATH487 Number for Middle Grades Teachers (3 Credits)**
The rational number and proportional reasoning concepts developed in the middle grades and the larger mathematical context for these. Multiple representations of relationships, including verbal descriptions, diagrams, tables, graphs, and equations. Common misconceptions.
**Prerequisite:** Must have admission to M.A. or M.Ed. with concentration in Mathematics Education; or permission of CMNS-Mathematics department.
**Restriction:** This course may not be used towards the upper level math requirements for the MATH/STAT major.
**Credit Only Granted for:** MATH487 or MATH498K.
**Formerly:** MATH498K.

**MATH489 Research Interactions in Mathematics (1-3 Credits)**
Students participate in a vertically integrated (undergraduate, graduate and/or postdoctoral, faculty) mathematics research group. Format varies. Students and supervising faculty will agree to a contract which must be approved by the department. Up to three credits of MATH489 may be applied to the mathematics degree requirements. See the department's MATH489 online syllabus for further information.
**Prerequisite:** Permission of CMNS-Mathematics department.
**Repeatable to:** 10 credits if content differs.

**MATH498 Selected Topics in Mathematics (1-9 Credits)**
Topics of special interest to advanced undergraduate students will be offered occasionally under the general guidance of the departmental committee on undergraduate studies.
**Repeatable to:** 9 credits if content differs.

# MEES - Marine-Estuarine-Environmental Sciences

**MEES432 Physiological Ecology of Animals (3 Credits)**
An examination of the influence of environmental constrains on animal function and energetic efficiency in the context of abiotic conditions in the habitats occupied by individuals.
**Prerequisite:** BSCI361; or students who have taken courses with comparable content may contact the department; or permission of instructor.
**Credit Only Granted for:** MEES498E, MEES698E, MEES432, or MEES632.
**Formerly:** MEES498E.

**MEES498 Topics in Marine-Estuarine-Environmental Sciences (1-4 Credits)**
Lecture and/or laboratory series organized to study a selected area of marine-estuarine-environmental sciences not otherwise considered in formal courses.

# MIEH - Maryland Institute for Applied Environmental Health

**MIEH240 Global Health Projects: Addressing Health Needs with a focus on Reciprocity and Relationships (3 Credits)**
Explore the needs of global communities, design interventions, and reflect on the potential outcomes in improving health in the communities served, while also focusing on students' own subjective experiences. Students will explore their roles as learners and the role of community members as local experts.

**MIEH300 A Public Health Perspective: Introduction to Environmental Health (3 Credits)**
Environmental health is that branch of public health that deals with the human health effects of exposure to chemical, physical, and biological agents in the community, workplace, and home. Activities within Environmental Health Sciences are associated with recognizing, assessing, understanding, and mitigating the impacts of chemical, physical, and biological agents as well as understanding how human behavior and action impacts the environment. This course focuses on the central concepts, principles, issues, and applications of the essential scientific components and strategies of control of major environmental health problems.
**Prerequisite:** Minimum grade of C- in CHEM131 and CHEM132; and must have completed or be concurrently enrolled in SPHL100 or PHSC300.
**Restriction:** Must have earned a minimum of 60 credits; and must be in Public Health Science program; or permission of SPHL-School of Public Health.
**Credit Only Granted for:** SPHL498N or MIEH300.
**Formerly:** SPHL498N.

**MIEH309 Environmental Health Research (1-3 Credits)**
This research-based course will provide undergraduates with the opportunity to work closely with one of the faculty researchers in the Maryland Institute for Applied Environmental Health (MIAEH) within the School of Public Health. Our research covers multiple fields within the environmental health sciences (e.g. environmental epidemiology, exposure science, risk assessment, environmental microbiology, environmental microbial genomics, food toxicology, airborne infection transmission, environmental justice, and children's environmental health) that involve either laboratory-based research or non-laboratory based studies. Students will not only gain invaluable research and interpersonal skills but also contribute to MIAEH's ongoing environmental health research programs.
**Restriction:** Must have completed a minimum of 45 credits; and must have permission of instructor.
**Repeatable to:** 9 credits if content differs.

**MIEH321 Environmental Determinants of Emerging Infectious Diseases (3 Credits)**
Examines the influences of environmental factors, economic development, migration, and land use changes on emergence and reemergence of infectious diseases. Explores how population growth, development, and climate change impact natural reservoirs of infectious diseases and how they are transmitted through human populations. Includes historical accounts, newly emerging and reemerging diseases.
**Prerequisite:** Must have completed or be concurrently enrolled in SPHL100.

**MIEH330 Environmental Justice, Racism, and Environmental Health Disparities: How where you live can kill you (3 Credits)**
Examination of environmental justice history, theory and science; discussion of linkages between the physical, natural, and social environments and environmental injustice; analysis of how environmental injustice can lead to adverse health conditions and environmental health disparities; discuss environmental justice case studies; and understanding of tools that can be used to understand and address environmental justice issues.
**Prerequisite:** Minimum grade of C- in MIEH300.
**Restriction:** Must be in a major in SPHL-School of Public Health.
**Credit Only Granted for:** MIEH210 or MIEH330.
**Formerly:** MIEH210.

**MIEH331 The Built Environment, Sustainability, and Public Health: The Good, the Bad, and the Ugly (3 Credits)**
Provides students with a fundamental understanding of theory, concepts, and issues related to the built environment; how the built environment influences behaviors and health outcomes; and opportunities to improve the built environment through planning, zoning, and community development initiatives that can make communities healthier, just, and more sustainable.
**Prerequisite:** Minimum grade of C- in MIEH300; or permission of instructor.
**Credit Only Granted for:** MIEH215 or MIEH331.
**Formerly:** MIEH215.

**MIEH333 Every Drop Counts: Water, Food and Global Public Health (3 Credits)**
In-depth interdisciplinary study of the public health issues related to water use for global food production. Topics will include accessibility and availability of safe water for agriculture worldwide, potential microbiological and chemical hazards in agricultural water, alternative water sources such as reclaimed wastewater and return flows, food safety approaches to managing agricultural water, and agricultural influences on surface and groundwater quality. Political, social, and economic factors relating to agricultural water will be addressed, with special focus on regions that are leaders in innovative water management and regions where access to clean water for agriculture is a major challenge.
**Prerequisite:** ENSP101 or MIEH300; or permission of department.
**Cross-listed with:** ENSP360.
**Credit Only Granted for:** MIEH333 or ENSP360.

**MIEH400 Introduction to Global Health (3 Credits)**
Exploration of theoretical frameworks and practical perspectives on issues shaping the global health panorama. Determinants examined through: biological and epidemiological; social, cultural and economic; environmental and geographic; multi-section, legal and institutional perspectives with synopsis of how these issues are addressed by international and community organizations in developing countries.
**Prerequisite:** Minimum grade of C- in MIEH300; and 1 course with a minimum grade of C- from (SPHL100, PHSC300).
**Restriction:** Must be in the Public Health Science program or must have permission of the program director; and must have completed 60 credits.
**Credit Only Granted for:** MIEH400 or SPHL498A.
**Formerly:** SPHL498A.

**MIEH407 One Health: Food Safety and Security (3 Credits)**
This is a collaborative course with the University of Maryland and Cairo University, Cairo, Egypt to explore the One Health Foundation and its application to improving international food safety and security. The purpose of this global undergraduate class is to disseminate knowledge on One Health and its application to improving global food safety and security. Students will apply principles of One Health to ensure food safety and food security in Egypt.
**Jointly offered with:** MIEH607.
**Restriction:** Must have earned at least 75 credits .
**Credit Only Granted for:** MIEH607 or MIEH407.

**MIEH480 Introduction to Occupational Health (3 Credits)**
Work, the way it is organized, and the workplace environment has an impact on public health and workers' and their families' physical and psychological health. The course introduces students to the field of occupational health and safety, and ensures that workers' health is considered in all public health practice and policy. Basic concepts in occupational safety and health are discussed, as well as methods to anticipate, recognize, evaluate, and control environmental factors or stresses arising in or from the workplace. In addition to instructor-led lectures, guest speakers will be invited to discuss case studies and/or discuss workplace hazards unique to specific populations.
**Prerequisite:** Minimum grade of C- in MIEH300 and EPIB301.
**Recommended:** BSCI201.

# MITH - Maryland Institute for Technology in the Humanities

**MITH301 Digital Publishing with Minimal Computing: Humanities at a Global Scale (3 Credits)**
In this Global Classrooms course, students of the University of Maryland and Universidad del Salvador, Buenos Aires, will come together to learn how to create and assess websites from a critical and humanities-focused perspective. Specifically, the course will introduce "minimal computing" approaches, which privilege the use of open technologies, ownership of data and code, reduction in computing infrastructure and, consequently, environmental impact. The course is structured around a group project with students from both universities. You will collaborate virtually to create a multilingual (Spanish and English) digital edition of a colonial era text, while learning about Digital Humanities approaches to literary studies, digital publishing, history, and postcolonial studies.
**Credit Only Granted for:** MITH301, ENGL378M, CMLT398M, or LACS348C.
**Additional Information:** Knowledge of the Spanish language is not required as teaching and collaboration will be conducted in English. In the spirit of fostering a multilingual approach, however, we will not discourage the use of Spanish among students and instructors; mutual respect and cooperation are paramount to the success of your course project.

**MITH388 Digital Humanities Research Assistantship (1-3 Credits)**
An applied introduction to the theory and practice of digital research. The internship includes regular meetings with MITH staff, including designers, developers, information professionals, project managers, and faculty, to gain knowledge of existing digital scholarship and resources within the arts and humanities. Students may contribute to existing MITH projects or propose a small, independent research project on which they will receive support from MITH staff.
**Restriction:** Permission of instructor.
**Repeatable to:** 6 credits.

**MITH498 Special Topics in Applied Digital Humanities (3 Credits)**
An introduction to special topics, and technical approaches, for theoretically grounded humanities and social sciences digital research. Class meetings will introduce students to a variety of technical approaches potentially applicable to the specific topical foci; the theoretical basis for selecting, evaluating, and modifying technical approaches; and best practices in project management.
**Repeatable to:** 9 credits if content differs.

# MLAW - MPower Undergraduate Law Programs

**MLAW100 Justice and the Law (3 Credits)**
An exploration into the relationship between justice and law, including psychological, philosophical, political and legal approaches to justice, as well as an analytical framework for understanding human rights.
**Restriction:** Course enrollment is restricted to students in the College Park Scholars Justice and Legal Thought Program (CPJT).

**MLAW150 Law in a Just Society (3 Credits)**
An exploration of the theoretical questions relating to such fundamental questions of jurisprudence as "what is law?" and "how can law be deployed as both an enemy and ally of justice?
**Restriction:** Must be in the College Park Scholars - Justice and Legal Thought program.

**MLAW217 Mock Trial (3 Credits)**
Experience the excitement and reward of arguing, and perhaps winning your client's case in court. Mock Trial is designed for students who are interested in learning practical techniques for shaping the evidence, using the law, and exploiting the courtroom to create a coherent and convincing case theory.
**Cross-listed with:** GVPT217.
**Credit Only Granted for:** MLAW217, GVPT217, or GVPT319A.
**Formerly:** GVPT319A.

**MLAW298 Special Topics in Legal Studies (1-3 Credits)**
Substantive and experiential approaches to legal phenomena. Topics vary.
**Repeatable to:** 6 credits if content differs.

**MLAW304 Introduction to Law and Social Inquiry (3 Credits)**
An exploration of the relationship between law and society from an interdisciplinary perspective. Major themes cover the impact of law on society, society on law and social change.
**Restriction:** Must be in the Law and Society (MLAW) minor.

**MLAW305 Law and Legal Institutions in Social Context (3 Credits)**
An exploration of case law, statutes, and regulations separately and together in their social context.
**Prerequisite:** MLAW304.
**Restriction:** Must be a student in the Law and Society Minor.

**MLAW315 Citizenship and Naturalization in America (2 Credits)**
Notions of who is an American - and who is not - are deeply rooted in the American ethos. Although the United States has long been praised for its inclusiveness vis-a-vis citizenship - including a policy of jus soli, or birthright citizenship - a closer look reveals a difficult history involving the categorical exclusion of many groups from American citizenship. We will examine this history, focusing particularly on Black and Native Americans and immigrants, and drawing upon legal cases, historical texts, and personal narratives detailing the lived experiences of those seeking American citizenship. We will trace this history to the present and explore the current process and requirements for becoming an American citizen. Students will have an opportunity to engage guests and discussions from the Maryland Carey School of Law and other experts.
**Restriction:** Must be in the Law and Society minor (MLAW); or must be in College Park Scholars Justice and Legal Thought (CPJT).

**MLAW358 Selected Topics in Law and Society (3 Credits)**
An interdisciplinary exploration of topics in law and society. Major scholarly interpretations of specific substantive fields of law.
**Restriction:** Must be in the Law and Society Minor.
**Repeatable to:** 6 credits if content differs.

**MLAW359 Undergraduate Teaching Assistant Experience (3 Credits)**
Designed to engage experienced Law and Society students as mentors and class leaders. Students will be involved in lesson planning, course design, field trips, and class discussion as they develop their leadership and public speaking skills.
**Prerequisite:** MLAW304.
**Restriction:** Must be enrolled in the Law and Society minor; and permission of program.
**Repeatable to:** 6 credits.
**Formerly:** MLAW355.

**MLAW377 The Legal Profession (3 Credits)**
Designed to introduce students to a variety of legal fields. The course is designed to combine social science literature about the legal profession with real world experiences with lawyers and legal workers. It will address questions about law as a profession, field of advocacy and as a business.
**Restriction:** Must be in the Law and Society Minor.

**MLAW378 Special topics in Law and Society (3 Credits)**
An interdisciplinary examination in law and society, relying on scholarly interpretations of specific substantive topics of law
**Recommended:** MLAW304.
**Restriction:** Must be in Law and Society Minor.
**Repeatable to:** 6 credits if content differs.

**MLAW388 Law and Society Internship (1-4 Credits)**
Participation in the Law and Society Internship (LASI) offers students the opportunity to enhance their education through practical skill building in the realm of law-related professionals.
**Repeatable to:** 7 credits.

**MLAW404 Law & Society Capstone (3 Credits)**
An exploration of the implications of technology on law and society from a variety of perspectives.Significant issues will be taken from contemporary scholarship and court cases.
**Restriction:** Student must be enrolled in the Law and Society minor.

**MLAW411 Appellate Advocacy I (3 Credits)**
By the end of this class, and with proper supervision, students should be able to competently brief and argue an appeal before any appellate court in the country. The skills taught in this class also transfer to other contexts that demand clear legal analysis, efficient and comprehensive legal research, excellent writing and effective oral advocacy. For students interested in pre-law skills, whether they plan to go to law school or some career that requires analytical reasoning, persuasive writing, and advocacy skills.
**Recommended:** MLAW304.

# MLSC - MD Language Science Ctr

**MLSC250 Lol that's not funny: Language change and linguistic creativity in online communication (3 Credits)**
Recent developments in technology, from texting to Zoom, have created new environments for human language use. Examining how communication is changing in these environments highlights humans' endless linguistic ingenuity – ranging from new vocabulary and punctuation conventions to the use of hashtags, emoji and memes. At the same time, these linguistic innovations exemplify broader patterns of language change and diversity that have been documented and studied by language scientists. In this course, we will engage with the study of language variation and change through a survey of language use in different online environments, and will apply insights from linguistic research to analyze our own and others' language use in more nuanced ways.

**MLSC308 PULSAR Language Science Research Seminar (1 Credit)**
Research seminar for students in the PULSAR language science program. Weekly presentations and discussions on diverse topics in language science research, as well as on developing research skills.
**Restriction:** Must be in PULSAR program or have permission of the instructor.
**Repeatable to:** 4 credits.
**Credit Only Granted for:** BSOS338P or MLSC308.
**Formerly:** BSOS388P.

# MUED - Music Education

**MUED155 Fundamentals for the Classroom Teacher (3 Credits)**
The fundamentals of music theory and practice, related to the needs of the classroom and the kindergarten teacher.
**Restriction:** Must be in one of the following programs (Early Childhood Education; Elementary Education) ; or must be a Pre-Elementary Education major; or must be a Pre-Early Childhood Education major.

**MUED186 Pre-professional Experiences I (2 Credits)**
An orientation into the role of the music teacher in the school and community. On-site school visits at elementary, middle and high school levels form the basis for discussion and exploration of all facets of the music education profession.
**Restriction:** Must be in Music Education program.
**Additional Information:** Fulfills the College of Arts and Humanities requirement for ARHU158.

**MUED187 Pre-Professional Experiences II (1 Credit)**
Regular on-site school visitation at elementary, middle and high school levels arranged to expand student understandings and reflections of music instruction in classroom settings.
**Prerequisite:** MUED186.
**Restriction:** Must be in Music Education program.

**MUED213 String Technique and Pedagogy I (2 Credits)**
A study of violin, viola, cello and bass technique and pedagogy; beginning level. Emphasizes group process playing and teaching.
**Restriction:** Must be in Music Education program.

**MUED214 String Technique and Pedagogy II (2 Credits)**
A study in violin, viola, cello and bass technique and pedagogy; intermediate to advanced level. Emphasizes group process playing and teaching, chamber music and individual technique development.
**Restriction:** Must be a major in Music Education-instrumental option.

**MUED215 Woodwind Technique and Pedagogy (2 Credits)**
Playing experience on instruments of the woodwind family. Historical and acoustical background. Basic concepts of teaching. Methods and materials. Techniques of individual and class instruction.
**Restriction:** Permission of ARHU-School of Music department.

**MUED216 Percussion Technique and Pedagogy (2 Credits)**
Playing experience on percussion instruments. Historical and acoustical background. Scoring for percussion. Principles of improvisation. Basic concepts of teaching. Methods and materials. Techniques of individual and class instruction.
**Restriction:** Must be in Music Education program.

**MUED217 Brass Instrument Technique and Pedagogy (2 Credits)**
Playing experience on instruments of the brass family. Historical and acoustical background. Principles of improvisation. Basic concepts of teaching. Methods and materials. Techniques of individual and class instruction.
**Restriction:** Must be in Music Education program.

**MUED269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**MUED305 Marching Band Techniques (2 Credits)**
Designed to aid the student in learning how to prepare, organize, teach, and rehearse the contemporary high school marching band. Through class discussions, practical assignments, guest lecturers and audio/visual aids, students will gain a command of the terminology, pedagogy, and structure of a marching ensemble and its potential.
**Restriction:** Must be in Music Education program.
**Credit Only Granted for:** MUED499M or MUED305.
**Formerly:** MUED499M.

**MUED311 Teaching Elementary Instrumental Music I (2 Credits)**
Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to teach fundamental musical skills at the elementary level.
**Prerequisite:** MUED187.
**Restriction:** Must be in Music Education program.

**MUED320 Teaching Secondary Instrumental Music I (2 Credits)**
Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to extend secondary-level musical skill through planned instruction and development of teaching materials.
**Prerequisite:** MUED187.
**Restriction:** Must be in Music Education program.

**MUED322 Teaching General Music I (2 Credits)**
Teaching General Music I is designed as a fundamental music methods course for students who are preparing for a career in general music. This course will focus on developmentally appropriate teaching practices for building musicianship in a general music setting.
**Prerequisite:** MUED187 and MUED186.
**Restriction:** Must be in Music Education program.
**Credit Only Granted for:** MUED222 or MUED322.
**Formerly:** MUED222.

**MUED333 Classroom Vocal Pedagogy (2 Credits)**
An introduction to the fundamentals of group vocal pedagogy for the choral and general classroom teacher, including the teaching of posture, breathing, resonance, registration, articulation and foreign language diction as appropriate to needs of the child or adolescent singer in K-12 classroom settings.
**Prerequisite:** MUED187 and MUED186.
**Restriction:** Must be in Music Education program.

**MUED342 Technology for Music Education (2 Credits)**
Technology has profoundly remade nearly every facet of music, musicianship, and audience experience, including the education of music students. From the impact of recording, to the informational revolution of the internet, to the global economy, technology has accelerated the rate of change in our society and will likely continue to play a central role in the evolution of humanity. This course explores the broad dimensions of technology as they impact the lives of teachers and students in music education.
**Restriction:** Must be in Music Education program.
**Credit Only Granted for:** MUED342 or MUED499T.
**Formerly:** MUED499T.

**MUED369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**MUED386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Must have learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.
**Restriction:** Junior standing or higher.

**MUED411 Teaching Elementary Instrumental Music II (4 Credits)**
Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to develop and/or maintain an exemplary curricular-oriented, research-based, comprehensive elementary instrumental music program.
**Prerequisite:** MUED320 and MUED311.
**Restriction:** Must be in Music Education program.

**MUED420 Teaching Secondary Instrumental Music II (4 Credits)**
Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to develop and/or maintain an exemplary, curricular-oriented, research-based, comprehensive secondary instrumental program.
**Prerequisite:** MUED320 and MUED311.
**Restriction:** Must be in Music Education program.

**MUED422 Teaching General Music II (4 Credits)**
Designed as an advanced music methods course and field experience for students who are preparing for a career in general music. The field experience is a practicum that is co-supervised by the university instructor and a general music educator.
**Prerequisite:** MUED322 and MUED333.
**Restriction:** Must be in Music Education program.
**Credit Only Granted for:** MUED422 or MUED471.
**Formerly:** MUED471.

**MUED433 Teaching Choral Music (4 Credits)**
Preparation for teaching choral classes through the integration of conducting technique, vocal pedagogy, knowledge of repertoire, and the application of appropriate instructional strategies in the context of peer teaching and field experience assignments.
**Prerequisite:** MUED422.
**Restriction:** Must be in Music Education program.
**Credit Only Granted for:** MUED472 or MUED433.
**Formerly:** MUED472.

**MUED473 Teaching General Music for Instrumentalists (2 Credits)**
Introduction to current trends, materials and approaches in general music instruction.
**Prerequisite:** MUED311; and MUED320.
**Restriction:** Must be in Music Education program.

**MUED474 Field Experiences: Pre-Student Teaching (2 Credits)**
Field experiences to fulfill teaching requirements in K-12 music teacher education program.
**Prerequisite:** MUED420 and MUED411; or (MUED472 and MUED471).
**Restriction:** Permission of ARHU-School of Music department; and senior standing.

**MUED484 Student Teaching in Elementary School: Music (6 Credits)**
Fulfills elementary teaching requirements in K-12 music teacher education program. Limited to music education majors who have previously applied.
**Corequisite:** MUED494.
**Restriction:** Permission of ARHU-School of Music department; and must be in Music Education program.

**MUED489 Field Experiences (1 Credit)**
Series of field experiences in K-12 settings.
**Restriction:** Permission of ARHU-School of Music department; and must be in Music Education program.
**Repeatable to:** 6 credits.

**MUED494 Student Teaching in Secondary School: Music (6 Credits)**
Fulfill secondary teaching requirements in K-12 music teacher education program. Limited to music education majors who have previously applied.
**Corequisite:** MUED484.
**Restriction:** Permission of ARHU-School of Music department; and must be in Music Education program.

**MUED499 Workshops, Clinics, Institutes (1-3 Credits)**
Innovative and experimental dimensions of music education offered to meet the needs of music teachers and music supervisors allowing students to individualize their programs.
**Repeatable to:** 6 credits if content differs.

# MUET - Ethnomusicology

**MUET269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**MUET369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

# MUSC - School of Music

**MUSC102 Class Piano (2 Credits)**
Functional piano training for beginners. Development of techniques for school and community playing. Basic piano techniques; chord, arpeggio and scale techniques; melody and song playing; simple accompaniments, improvisation for accompaniments and rhythms; sight reading and transposition and playing by ear.

**MUSC103 Beginning Class Piano II (2 Credits)**
Functional piano training for beginners. Development of techniques useful for school and community playing. Basic piano techniques; chord, arpeggio, and scale techniques; melody and song playing; simple accompaniments, improvisation for accompaniments and rhythms; sight reading and transposition, and playing by ear. MUSC103 is a continuation of MUSC102; elementary repertoire is begun.
**Prerequisite:** MUSC102; or permission of ARHU-School of Music department.

**MUSC106 Beginning Classical Guitar (2 Credits)**
Introduction to classical guitar notation, technique, literature and performance. No previous musical experience required.

**MUSC123 Movement for Singers (1 Credit)**
Systematic exercises, improvisations and dances in conjunction with artistic vocal expression. Performance and critique of stage deportment, gestures and recital techniques.
**Prerequisite:** Permission of ARHU-School of Music department.

**MUSC126 Vocal Diction: English (1 Credit)**
An introduction to the fundamentals of phonetics and sound production as applied to singing English vocal literature through detailed work with IPA, the International Phonetic Alphabet.
**Prerequisite:** Permission of ARHU-School of Music department.

**MUSC127 Vocal Diction: Italian (1 Credit)**
Augmentation of private voice study. Phonetics and diction for singers of Italian vocal literature.
**Prerequisite:** Permission of ARHU-School of Music department.
**Restriction:** Must be in a major within the ARHU-School of Music department.

**MUSC128 Sight Reading For Pianists (2 Credits)**
A course to give the piano major an opportunity to develop proficiency in sight reading at the keyboard.
**Repeatable to:** 4 credits.

**MUSC129 Ensemble (1 Credit)**
Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC129, the student will elect MUSC229 for two additional semesters and MUSC329 thereafter.

**MUSC130 What Does Music Mean? (3 Credits)**
An examination of how music creates meaning in different eras, through studying musical sound, biography, and social history.
**Restriction:** Must not be in any of the following programs (Music (Professional Program); Music Education).

**MUSC140 Music Fundamentals I (3 Credits)**
Introductory theory course. Notation, scales, intervals, triads, rhythm, form and basic aural skills.
**Restriction:** Must not be in any of the following programs (Music (Professional Program); Music Education).

**MUSC150 Theory of Music I (3 Credits)**
A study of basic concepts and skills in tonal melody and harmony through analysis and composition.
**Prerequisite:** Departmental audition and entrance examination.
**Restriction:** Must be in one of the following programs (Music (Liberal Arts Program); Music (Jazz Performance Option); Music (Winds & Percussions Performance Option); Music (Voice Performance Option); Music Composition; Music (Professional Program); Music (Piano Performance Option); Music Performance-Winds and Percussion; Music Theory and Composition; Music Performance-Piano; Music Performance-Jazz Studies; Music Performance-Voice; Music Performance-Strings; Music (Strings Performance Option)).

**MUSC151 Theory of Music II (3 Credits)**
A continuation of MUSC150, including study of more advanced harmonic techniques of the eighteenth century, such as modulation and chromatic harmonies. Emphasis on sight singing, ear training, analysis and compositional skills.
**Prerequisite:** Minimum grade of C- in MUSC150.

**MUSC202 Intermediate Class Piano I (2 Credits)**
Advanced keyboard techniques. Continuation of skills introduced in MUSC103. Transposition, modulation and sight reading; methods of teaching functional piano.
**Prerequisite:** MUSC103; or must have equivalent piano training.

**MUSC203 Intermediate Class Piano II (2 Credits)**
Advanced keyboard techniques. Continuation of skills introduced in MUSC202. Transposition, modulation and sight reading; methods of teaching functional piano. Development of style in playing accompaniments and in playing for community singing. More advanced repertory.
**Prerequisite:** MUSC202; or must have equivalent piano training.

**MUSC204 Popular Music in Black America (3 Credits)**
Traces black popular music in the U.S. with a special focus on spirituals, ragtime, the blues, early jazz, RB, Motown, funk, soul, and rap. Examines how these styles have been borrowed by the American music industry.

**MUSC205 History of Popular Music, 1950-Present (3 Credits)**
A historical survey of rock music (blues, rock, soul, metal, rap, etc.) from circa 1950 to the present, with emphasis on popular music as music and popular music as social history.

**MUSC210 The Impact of Music on Life (3 Credits)**
Music as a part of culture. Materials drawn from traditions throughout the globe to illustrate issues of historical and contemporary significance, including the impact of race, class and gender on the study of music.
**Credit Only Granted for:** MUET210 or MUSC210.
**Formerly:** MUET210.

**MUSC215 World Popular Musics and Identity (3 Credits)**
Focus on popular musics in different cultures with an emphasis on cross-cultural comparisons and analysis of how musics and identity intersect.
**Credit Only Granted for:** MUET200 or MUSC215.
**Formerly:** MUET200.

**MUSC220 Selected Musical Cultures of the World (3 Credits)**
A critical and comparative exploration of musical practices from around the world in their social, political and economic contexts.
**Restriction:** Must not be in any of the following programs: (Music (Professional Program); Music Education).

**MUSC226 Vocal Diction: French (1 Credit)**
Augmentation of private voice study. Phonetics and diction for singers of French vocal literature.
**Prerequisite:** Permission of ARHU-School of Music department.
**Restriction:** Must be in a major within ARHU-School of Music department.

**MUSC227 Vocal Diction: German (1 Credit)**
Augmentation of private study. Phonetics and diction for singers of German vocal literature.
**Prerequisite:** Permission of ARHU-School of Music department.
**Restriction:** Must be in a major within ARHU-School of Music department.

**MUSC228 Introduction to Accompanying for Pianists (2 Credits)**
A course to introduce the piano major to accompanying at an intermediate level of difficulty. Class instruction will center on rehearsal and coaching geared toward performance, and will be supplemented by experience working as an accompanist in voice classes or applied studios.
**Prerequisite:** Permission of ARHU-School of Music department.
**Restriction:** Must be in a major within ARHU-School of Music department.
**Repeatable to:** 10 credits.

**MUSC229 Ensemble (1 Credit)**
Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC129, the student will elect MUSC229 for two additional semesters and MUSC329 thereafter.

**MUSC240 Elements of Music Composition for Non-Majors (3 Credits)**
Emphasizes learning concepts and techniques of music composition through the study of music theory and structure used in both classical and popular music forms. Students will compose music using computer assisted and composition tools. These tools include cloud based digital audio workstations and music notation programs. Compositions will be written in these musical styles but not limited to classical, jazz, and popular. Students will also explore methods of sharing their compositions on various digital platforms.
**Prerequisite:** MUSC 140, or by permission of instructor.
**Recommended:** Ability to read music on a grand staff (treble and bass clef).
**Restriction:** Must not be in any of the following programs: (Music (Professional Program); Music Education).
**Credit Only Granted for:** MUSC240 or HONR218M.
**Formerly:** HONR218M.

**MUSC248 Selected Topics in Music (1-3 Credits)**
Designed to allow a student of theory or music history to pursue a specialized topic or project under the supervision of a faculty member.
**Prerequisite:** Permission of ARHU-School of Music department.
**Repeatable to:** 6 credits if content differs.

**MUSC250 Advanced Theory of Music I (4 Credits)**
A continuation of MUSC 151, with further study of chromatic and modulatory techniques of the nineteenth century. Emphasis on sight singing, ear training, analysis and compositional skills.
**Prerequisite:** Minimum grade of C- in MUSC151.

**MUSC251 Advanced Theory of Music II (4 Credits)**
A continuation of MUSC250, concentrating on late nineteenth-century chromatic harmony and an introduction to twentieth-century melody and harmony. Emphasis on sight singing, ear training, analysis and compositional skills.
**Prerequisite:** Minimum grade of C- in MUSC250.

**MUSC260 Music as Global Culture (3 Credits)**
Explores how and why people create, transform, and move music around the globe. Taking a comparative approach to Western art musics and other musics of the world, course will examine a variety of musical practices in their social, political, and economic contexts. Experiential knowledge will be developed through hands-on ethnographic research.
**Prerequisite:** MUSC151.
**Restriction:** Must be in a major within the ARHU-School of Music department.
**Credit Only Granted for:** MUSC220 or MUSC260.

**MUSC269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**MUSC289I Exploring the Power of Musical Performance in Social Engagement (3 Credits)**
Explores the ways people, across cultures and times, have drawn on music's power to further causes such as revolution and social change or to bring attention to injustices such as discrimination, exclusion, or oppressive working conditions.

**MUSC328 Introduction to Chamber Music for Pianists (2 Credits)**
A course to introduce the piano major to chamber music at a moderately difficult level. Class instruction will center on actual rehearsal and coaching geared toward performance, and will be supplemented by further experience in applied instrumental studios.
**Prerequisite:** Permission of ARHU-School of Music department.
**Repeatable to:** 10 credits.

**MUSC329 Ensemble (1 Credit)**
Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC129, the student will elect MUSC229 for two additional semesters and MUSC329 thereafter.

**MUSC330 Music History III (3 Credits)**
A historical study of Western music from 1800 to present.
**Prerequisite:** MUSC320; and permission of ARHU-School of Music department.

**MUSC339 Honors in Music (3 Credits)**
The production of one or more recitals or lecture-recitals; one or more compositions; or one or more honors theses in addition to regular degree requirements. Two semesters required.
**Prerequisite:** Permission of ARHU-School of Music department.
**Corequisite:** MUSC349.
**Repeatable to:** 6 credits.

**MUSC349 Honors Seminar in Music (1 Credit)**
Group discussion of projects undertaken in MUSC339. Two semesters required.
**Corequisite:** MUSC339.
**Repeatable to:** 2 credits.

**MUSC360 Music in Western Culture Before 1900 (3 Credits)**
Course will be looking at roughly 800 years of Western art music in Europe and America (ca.1100-1900) through the lens of selected "moments"--intersections of historical space and time, observing music as an art form practiced in a public eye, both as a social event and a cultural practice.
**Prerequisite:** MUSC260.
**Restriction:** Must be in a major within the ARHU-School of Music department.
**Credit Only Granted for:** MUSC310 or MUSC360.

**MUSC361 Music in Western Culture After 1900 (3 Credits)**
Continuation of MUSC360. A historical study of Western classical music, popular music, and jazz since 1900.
**Prerequisite:** MUSC360.
**Restriction:** Must be in a major within the ARHU-School of Music department.
**Credit Only Granted for:** MUSC330 or MUSC361.

**MUSC369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**MUSC379 Opera Workshop (1 Credit)**
Open to music and non-music majors (by audition). Operatic production and performance, performance techniques and coaching, stage direction, set design, costume design and make-up. Repertory will include smaller operatic works, excerpts or scenes.
**Restriction:** Must complete a departmental audition.
**Repeatable to:** 4 credits.

**MUSC386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Permission of ARHU-School of Music department.
**Restriction:** Junior standing or higher.

**MUSC388 Music Internship (3 Credits)**
Pre-professional field work in music.
**Prerequisite:** Permission of ARHU-School of Music department.
**Corequisite:** MUSC389.
**Repeatable to:** 6 credits.

**MUSC389 Music Internship Analysis (1 Credit)**
Documentation and evaluation of field work experience.
**Corequisite:** MUSC388.
**Repeatable to:** 2 credits.

**MUSC400 Music Pedagogy (3 Credits)**
Conference course. A study of major pedagogical treatises in music, and an evaluation of pedagogical techniques, materials, and procedures.
**Prerequisite:** MUSP315; and permission of ARHU-School of Music department.

**MUSC420 Introduction to Ethnomusicology (3 Credits)**
Study of principal concepts and methods in ethnomusicology, covering history of field, linguistics and anthropology, music in various settings, musical cognition and ethnography of performance.
**Prerequisite:** MUSC210 and MUSC130; or permission of ARHU-School of Music department.
**Restriction:** Junior standing or higher.

**MUSC428 Repertoire Coaching of Vocal or Chamber Music (2 Credits)**
A course for piano students who wish to go further than the work offered in MUSC128, MUSC228 and MUSC328 by becoming specialists in the areas of vocal coaching or chamber music coaching. Elements of pedagogy, conducting and responsible artistic decision-making for the entire musical production.
**Prerequisite:** Must have completed or be concurrently enrolled in MUSC328.

**MUSC436 Jazz: Then and Now (3 Credits)**
Major styles and influential artists of the past 75 years of jazz.

**MUSC438 Area Studies in Ethnomusicology (3 Credits)**
Advanced study of musics in selected parts of the world.
**Repeatable to:** 9 credits if content differs.

**MUSC439 Collegium Musicum (1 Credit)**
Open to undergraduates and graduates, music majors and non-majors. Procurement, edition and performance of music not belonging to a standard repertory: early music, compositions for unusual performing media, works which demand reconstruction of their original circumstances of performance. Outcome of a semester's work may be one or more performances for the public.
**Prerequisite:** Permission of ARHU-School of Music department.
**Repeatable to:** 5 credits.

**MUSC443 Solo Vocal Literature (3 Credits)**
The study of solo vocal literature from the Baroque Cantata to the Art Song of the present. The Lied, Melodie, vocal chamber music and the orchestral song are examined.
**Prerequisite:** MUSC330 and MUSC331; or students who have taken courses with comparable content may contact the department.

**MUSC444 Wind and Percussion Literature (1 Credit)**
Recital program notes and written projects in wind or percussion literature.
**Prerequisite:** Permission of ARHU-School of Music department.
**Corequisite:** MUSP420 or MUSP419.

**MUSC445 Survey of the Opera (3 Credits)**
A study of the music, librettos and composers of the standard operas.
**Prerequisite:** MUSC330 and MUSC331; or students who have taken courses with comparable content may contact the department.

**MUSC446 String Literature (1 Credit)**
Recital program notes and written projects in string literature.
**Prerequisite:** MUSP316; and permission of ARHU-School of Music department.

**MUSC448 Selected Topics in Music (1-3 Credits)**
**Prerequisite:** Permission of ARHU-School of Music department.
**Repeatable to:** 6 credits if content differs.

**MUSC448E Financial Entrepreneurship for Arts Leaders (3 Credits)**
An introduction to financial entrepreneurship for the arts leader in order to prepare students for diverse and ever-changing careers in the arts and creative fields. Topics explored will include Professional Paperwork (resumes, cover letters, biographies, job searches), Financial Literacy (taxes, budgets, boards, tickets sales, musicians unions), Marketing (website development, social media, press packets, record labels vs. online distribution, headshots, audience development, community engagement, branded content), Communication (public speaking, writing), and Technology (online tools, computer software, peripherals, recording, photography/videography, on campus resources).
**Cross-listed with:** ARHU340.
**Credit Only Granted for:** ARHU340 or MUSC448E.

**MUSC450 Musical Form (3 Credits)**
A study of the principles of organization in music with emphasis on eighteenth and nineteenth century European music. Reading and analysis of scores exemplifying the musical forms.
**Prerequisite:** MUSC251.

**MUSC451 Analysis of Music (3 Credits)**
A course in the analysis of music. Discussion of individual works, with emphasis on their unique characteristics and on the relation of analysis to performance.
**Prerequisite:** MUSC450; or permission of instructor.

**MUSC453 Jazz Improvisation I (3 Credits)**
Jazz theory, notational conventions, improvisation techniques, reading and analysis of music, and performance in small combo format.
**Prerequisite:** MUSC251; or students who have taken courses with comparable content may contact the department. And permission of ARHU-School of Music department.
**Credit Only Granted for:** MUSC345 or MUSC453.
**Formerly:** MUSC345.

**MUSC454 Jazz Improvisation II (3 Credits)**
Continuation of MUSC453 including scoring and transcription.
**Prerequisite:** MUSC453; or students who have taken courses with comparable content may contact the department. And permission of ARHU-School of Music department.
**Credit Only Granted for:** MUSC346 or MUSC454.
**Formerly:** MUSC346.

**MUSC455 Theory of Jazz (3 Credits)**
Analysis of jazz harmony, with emphasis on principles of substitution, reharmonization, and syntax. Topics may also include chord/scale relationships, phrasing and articulation, notation, and introductory arranging concepts such as orchestration and form.
**Prerequisite:** MUSC250; or permission of ARHU-School of Music department.
**Restriction:** Must be in a major within ARHU-School of Music department.

**MUSC456 Jazz Arranging (3 Credits)**
A comprehensive approach to jazz arranging. Topics to include chord scale theory, voicing techniques, part and score layout, and formal construction of an arrangement.
**Prerequisite:** MUSC455; and permission of ARHU-School of Music department.
**Credit Only Granted for:** MUSC448N or MUSC456.
**Formerly:** MUSC448N.

**MUSC460 Tonal Counterpoint I (3 Credits)**
A course in Eighteenth-Century contrapuntal techniques, analysis and original composition of two-voice dances, preludes, and inventions. Includes an introduction to the study of fugue and canon.
**Prerequisite:** MUSC251; or permission of ARHU-School of Music department.

**MUSC461 Theory and Analysis of Atonal and Twelve-tone Music (3 Credits)**
An advanced technical introduction to theory and analysis of atonal and twelve-tone music, with an emphasis on music by Schoenberg, Webern, Bartok, and Stravinsky.
**Prerequisite:** MUSC251 and MUSC450; and permission of ARHU-School of Music department.
**Restriction:** Must be in Music Theory and Composition program. Jointly offered with MUSC661.
**Credit Only Granted for:** MUSC46 1 or MUSC661.

**MUSC463 Technology and a Career in Music (3 Credits)**
A hands-on introduction to technology as it applies to music creation and recording. Digital audio workstations, music notation software, and cloud-based music technology are used to create and manipulate musical examples with an eye toward their practical applications for professional musicians.
**Recommended:** Ability to read music on a grand staff (treble and bass clef).
**Additional Information:** No previous experience with technology is required.

**MUSC464 The Theories of Heinrich Schenker (3 Credits)**
An advanced analysis course in tonal music with specific emphasis on the theories of the early 20th century theorist Heinrich Schenker. Specific analyses of music by Bach, Mozart, Haydn, Beethoven, Chopin, and Brahms.
**Prerequisite:** MUSC251 and MUSC450; and permission of ARHU-School of Music department.
**Restriction:** Must not have completed MUSC651.
**Credit Only Granted for:** MUSC464 or MUSC651.

**MUSC467 Piano Pedagogy I (3 Credits)**
A study of major pedagogical treatises in music, and an evaluation of pedagogical techniques, materials, and procedures.
**Prerequisite:** Permission of ARHU-School of Music department.

**MUSC468 Piano Pedagogy II (3 Credits)**
Application of the studies begun in MUSC467 to the actual lesson situation. Evaluation of results.
**Prerequisite:** MUSC467; and permission of ARHU-School of Music department.
**Repeatable to:** 6 credits.

**MUSC469 Orchestral Excerpts for String Players (1 Credit)**
In-depth study of the orchestral excerpts required for professional orchestra auditions.
**Restriction:** Permission of ARHU-School of Music department.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** MUSC469, MUSC448B, MUSC448Q, MUSC448V, or MUSC448X.
**Formerly:** MUSC448B, MUSC448Q, MUSC448V, and MUSC448X.

**MUSC470 Harmonic and Contrapuntal Practices of the Twentieth Century (3 Credits)**
A theoretical and analytical study of twentieth century materials.
**Prerequisite:** MUSC251; or students who have taken courses with comparable content may contact the department. And permission of ARHU-School of Music department.

**MUSC471 Contemporary Compositional Techniques (3 Credits)**
Continuation of MUSC470, with emphasis on the analysis of individual works written since 1945.
**Prerequisite:** MUSC470; or permission of ARHU-School of Music department.

**MUSC472 Music Composition for Music Majors (3 Credits)**
A course for music majors who wish to develop skills and creative abilities in music composition. Student writing projects will be discussed in class and models of compositional techniques will be studied in literature from diverse styles and style periods.
**Prerequisite:** MUSC450 or equivalent; and permission of instructor.
**Restriction:** Registration restricted to music majors who are not majoring in music composition (cannot be in Major code: 1004B).
**Credit Only Granted for:** MUSC448O or MUSC472.
**Formerly:** MUSC448O.

**MUSC481 Music in the Renaissance (3 Credits)**
Survey of western music from 1450 to 1600.

**MUSC484 Music in the Romantic Era (3 Credits)**
Survey of western music from 1820 to 1900.

**MUSC486 Orchestration I (3 Credits)**
A study of the ranges, musical functions and technical characteristics of the instruments and their color possibilities in various combinations. Practical experience in orchestrating for small and large ensembles.
**Prerequisite:** MUSC251; and permission of ARHU-School of Music department.

**MUSC490 Conducting (2 Credits)**
Vocal and instrumental baton techniques.
**Prerequisite:** MUSC251.

**MUSC491 Conducting II (2 Credits)**
Baton techniques applied to score reading, rehearsal techniques, tone production, style and interpretation.
**Prerequisite:** MUSC490; or students who have taken courses with comparable content may contact the department.

**MUSC492 Keyboard Music I (3 Credits)**
The history and literature of harpsichord and solo piano music from its beginning to the romantic period. Emphasis is placed on those segments of repertory which are encountered in performance and teaching situations at the present time.
**Prerequisite:** Permission of ARHU-School of Music department.

**MUSC493 Keyboard Music II (3 Credits)**
The history and literature of harpsichord and solo piano music from the Romantic period to the present. Emphasis is placed on those segments of repertory which are encountered in performance and teaching situations at the present time.
**Prerequisite:** MUSC492; and permission of ARHU-School of Music department.

**MUSC499 Independent Studies (1-3 Credits)**
Independent research on a topic chosen in consultation with the instructor, which may culminate in a paper or appropriate project.
**Prerequisite:** Permission of ARHU-School of Music department.
**Additional Information:** May be repeated once for credit.

# MUSP - Music Performance

**NOTE ABOUT MUSP COURSES**

*Undergraduate Music Performance Courses are available in three series:*

1. ***Minor Series**: 2-credits each course. Prerequisite: permission of department chairperson. Limited to music majors studying a secondary instrument and to non-music majors. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is MUSP 102. Transfer students are evaluated for higher placement after one semester of study. One-half hour private lesson per week plus assigned independent practice. MUSP 102, MUSP 103 Freshman Courses. MUSP 202, 203 Sophomore Courses. MUSP 302, 303 Junior Courses. MUSP 402, 403 Senior Courses.*
2. ***Principal Series**: 2-4 credits each course. Prerequisites: departmental audition, entrance examination, and permission of department chairperson. Limited to majors in music programs other than performance and composition. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 109. Transfer students are evaluated for higher placement after one semester of study. One-hour private lesson per week plus assigned independent practice. Courses 109, 208, and 409 may be repeated once for credit, but only one successful attempt in each course may be applied towards baccalaureate degree requirements. MUSP 109, 110, Freshman Courses. MUSP 207, 208 Sophomore Courses. MUSP 305, 306 Junior Courses. MUSP 409, 410 Senior Courses. Recital required in MUSP 410.*
3. ***Major Series**: 2-4 credits each course. Prerequisites: departmental audition, entrance examination, and permission of department chairperson. Limited to majors in performance and composition. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 119. Transfer students are evaluated for higher placement after one semester of study. One-hour private lesson per week plus assigned independent practice. Courses 119, 218, and 419 may be repeated once for credit, but only one successful attempt in each course may be applied towards baccalaureate degree requirements. MUSP 119, 120 Freshman Courses. MUSP 217, 218 Sophomore Courses. MUSP 315, 316 Junior Courses. MUSP 419, 420 Senior Courses. Recital required in MUSP 420.*

***Instrument designation**: Each student taking a music performance course must indicate the instrument chosen by adding a suffix to the proper course number, such as: MUSP 102A music performance: A--piano; B--voice; C--violin; D--viola; E--cello; F--bass; G--flute; H--oboe; I--clarinet; J--bassoon; K--saxophone; L--horn; M--trumpet; N-- trombone; O--tuba; P--euphonium; Q--percussion; T--composition; U--world instruments; V--harp; W--electronic composition; X--hist inst - keyboard; Y--hist inst - strings; Z--hist inst - winds.*

**MUSP102 Music Performance (2 Credits)**

**MUSP269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**MUSP302 Music Performance (2 Credits)**

**MUSP303 Music Performance (2 Credits)**

**MUSP369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**MUSP386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Must have Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.
**Restriction:** Junior standing or higher.

**MUSP402 Music Performance (2 Credits)**
Senior course, in the minor series.

**MUSP403 Music Performance (2 Credits)**
Senior course, in the minor series.

**MUSP409 Music Performance (2-4 Credits)**
Senior course in the principal series.

**MUSP410 Music Performance (2-4 Credits)**
Senior course in the principal series. Recital required.

**MUSP419 Music Performance (2-4 Credits)**
Senior course in the major series.

**MUSP420 Senior Recital (4 Credits)**
Senior course in the major series. Recital required.

# NAVY - Navy

**NAVY100 Introduction to Naval Science (3 Credits)**
Introduction to the naval profession and concepts of sea power. Major topics explored are the mission, strategy, organization, and descriptions of the U.S. Navy and Marine Corps. Students will gain a basic understanding of warfighting capabilities, required leadership skills, training and education, and the duties and responsibilities of a U.S. Navy and Marine Corps Junior Officer. The student will learn Naval courtesy and customs, military justice, and nomenclature as well as the professional competencies required to become a naval officer.

**NAVY101 Sea Power and Maritime Affairs (3 Credits)**
Introduces the student to the key themes of naval and maritime history. Curriculum presents an analysis through lectures, reading, and student discussion of the relationship of sea power to American history. Classical concepts and contemporary employment of sea power are examined by viewing historic and current naval and maritime developments.

**NAVY108 Naval Science Leadership Lab (1 Credit)**
Introduces the student to a variety of instructional sessions and/or activities that will develop the leadership component of the Naval ROTC program. The Naval Science leadership lab may include, but not be limited to, close-order drill, physical fitness training, ceremonial functions, Department of the Navy policy, guest lecturers, general military training (GMT), Anti-Terrorism Force Protection (ATFP), traffic safety, nutrition, stress management, prevention of sexual harassment, and operations security.Corequisite: 1 course from NAVY100-402 course range.
**Corequisite:** 1 course from NAVY100-402 course range.
**Restriction:** Permission of UGST-Navy ROTC.
**Repeatable to:** 8 credits.

**NAVY200 Leadership and Management (3 Credits)**
Introductory course designed to familiarize students with the theories, processes, and behaviors that enable effective leadership and managerial competence. Students will engage in analytical discussions, review leadership development and education, and Navy/Marine Corps-based case study discussions in order to develop their understanding of personal strengths, values and growth opportunities in the context of team, group and organizational leadership.
**Restriction:** Permission of UGST-Navy ROTC.
**Additional Information:** Priority enrollment will be given to students enrolled in the NROTC program.

**NAVY201 Navigation (3 Credits)**
Introduces the student to a broad yet thorough education in basic surface ship navigation. Curriculum presents an overview of tools of the modern naval watch officer, and topics include celestial navigation, rules of the nautical road, piloting, practical chartwork, tides, instruments, publications, records, and electronic navigation systems. Instructional sessions and/or activities develop the maritime proficiency core competency of the Naval Reserve Officer Training Corps (NROTC) program.
**Restriction:** Permission of UGST-Navy ROTC.
**Additional Information:** Priority enrollment will be given to students enrolled in the University of Maryland NROTC program.

**NAVY300 Naval Ship Systems I (Engineering) (3 Credits)**
Introduces the student to a comprehensive fundamental understanding of United States naval engineering principles and systems. Topics include thermodynamics, incompressible fluid flow, electrical theory, hydraulics and pneumatics, power train components, fluid/lube oil systems, desalination, fundamentals of nuclear power, propulsion systems (internal combustion, gas turbines, and steam), electrical distribution, ship stability and control and damage control. Students will also examine case studies to apply and analyze course topics within naval ships systems contexts.
**Recommended:** MATH140 and MATH141.
**Restriction:** Permission of UGST-Navy ROTC.
**Additional Information:** Priority enrollment will be given to students enrolled in the NROTC program.

**NAVY301 Naval Ship Systems II (Weapons) (3 Credits)**
Introduces the student to a comprehensive fundamental understanding of United States naval weaponry. Includes theory and employment of weapons systems, including the processes of detection, evaluation, threat analysis, weapon selection, delivery, guidance, and explosives. Radar and sonar systems and major weapon types, including capabilities and limitations. Facets of command, control, and communications as means of weapons system integration. Curriculum presents an in-depth review of surface, sub-surface, aviation, and Marine Corps weapons and platforms.
**Recommended:** MATH140, MATH141, and PHYS161.
**Restriction:** Permission of UGST-Navy ROTC.
**Additional Information:** Priority enrollment will be given to students enrolled in the NROTC program.

**NAVY302 Evolution of Warfare (3 Credits)**
Traces the development of warfare, from earliest recorded history to the present, with focus on the impact of major military theorists, strategists, tacticians, and technological developments. The student acquires an intermediate sense of strategy and develops an understanding of military alternatives and the impact of historical precedent on military thought and actions.
**Recommended:** NAVY100 and NAVY101.
**Restriction:** Permission of UGST-Navy ROTC.
**Additional Information:** Priority enrollment will be given to students in the NROTC program.

**NAVY400 Naval Operations and Seamanship (3 Credits)**
Capstone course for senior NROTC Navy-option midshipmen in advanced navigation, communications, naval operations, and naval warfare. Students learn through simulation in a computer classroom known as the Maritime Skills Simulator (MSS), in addition to lectures, discussions, and qualitative and quantitative tests/examinations. Students will engage in discussions regarding the moral and ethical responsibilities or military leaders, as well as the essential attributes of character required for effective leadership.
**Recommended:** NAVY201.
**Restriction:** Permission of UGST-Navy ROTC.
**Additional Information:** Priority enrollment will be given to students enrolled in the NROTC program.

**NAVY401 Leadership and Ethics (3 Credits)**
Integrates an intellectual exploration of Western moral traditions and ethical philosophy with military leadership, core values, the Uniform Code of Military Justice, and Navy regulations. The course provides students with a basic understanding of major moral traditions including Relativism, Utilitarianism, Kantian Ethics, Natural Law Theory, Divine Command Theory, and Virtue Ethics.
**Recommended:** NAVY200.
**Restriction:** Permission of UGST-Navy ROTC.
**Additional Information:** Priority enrollment will be given to students enrolled in the NROTC program.

**NAVY402 Fundamentals of Maneuver Warfare (3 Credits)**
A detailed study of the characteristics of modern warfare and their interactions with maneuver warfare doctrine, with a focus on the United States Marine Corps. Throughout the course, there is a strong focus on leadership, as the fundamental purpose of this course is to develop the skills, knowledge, leadership background and mentality necessary for a successful future leadership and service, whether in the military or the civilian sector.
**Recommended:** NAVY100, NAVY101, NAVY200, and NAVY108.
**Restriction:** Permission of UGST-Navy ROTC.
**Additional Information:** Priority in enrollment will be given to students in the NROTC program.

# NEUR - Neuroscience

**NEUR200 Introduction to Neuroscience (3 Credits)**
In an evolutionary sense, the job of the nervous system is to produce, control, and coordinate behaviors that help an animal survive and reproduce. Neuroscience is the study of how the nervous system does that. Provides a broad introduction to neuroscience, always keeping the behavioral consequences in view.
**Prerequisite:** Minimum grade of C- in BSCI170 and BSCI171.
**Cross-listed with:** PSYC202.
**Credit Only Granted for:** PSYC309U, NEUR200, PSYC202 or PSYC301.
**Formerly:** PSYC309U.

**NEUR238 Special Topics in Neuroscience Student Initiated Courses (1 Credit)**
Student Initiated Course (STIC) in Neuroscience. Course will be student initiated and taught in a "journal club" style under close supervision of a faculty mentor. Student instructor and faculty mentor must generate proposal and have approval of the Neuroscience Program to offer a NEUR238 STIC. NEUR238 cannot be applied to the degree requirements of any neuroscience major.
**Repeatable to:** 5 credits if content differs.

**NEUR305 Neural Systems and Circuits (3 Credits)**
Overview of the fundamental principles underlying the systems and circuits of the human nervous system, with a focus on cognitive processes and how these systems interact. Students will engage in the analysis of case studies, apply their knowledge of the neural circuitry to explain everyday phenomena, hypothesize ways to further investigate the nervous system, and propose how knowledge of neural circuits can be used in human society and the resulting implications.
**Prerequisite:** Minimum grade of C- in MATH120 or higher MATH course; and a minimum grade of C- in NEUR200 or BSCI353; or equivalent.

**NEUR306 Cellular and Molecular Neuroscience (3 Credits)**
Students will gain an appreciation of neuroscience as the nexus of chemistry, physics, and biology. Additionally, they will gain an understanding of how: both individual and networks of neurons function as variable electrical circuits; our nervous systems transduce signals from the outside world and sets-off molecular cascades; the behavior of a neuron can be changed and or remain the same in response to changing variables. Techniques used to study the nervous system at a cellular and molecular level will be discussed.
**Prerequisite:** Earning C- or higher in NEUR200 or BSCI330.
**Corequisite:** Must have completed or be concurrently enrolled in PHYS132 or equivalent course.
**Credit Only Granted for:** NEUR306 or BSCI353.

**NEUR329 Instructional Assistance Practicum (1-3 Credits)**
Students serve as instructional assistants in selected undergraduate neuroscience courses. Roles and responsibilities and pre/co-requisites are determined on a course- specific basis and approved by the Program Curriculum Committee.
**Repeatable to:** 9 credits.
**Additional Information:** Course not acceptable toward major requirements in the Neuroscience.

**NEUR379 Special Topics: Research in Neuroscience (1-3 Credits)**
Research and/or integrated reading in a topic related to neuroscience, under the direction and close supervision of a member of the University of Maryland faculty.
**Recommended:** At least a 3.0 neuroscience track GPA and no records of academic misconduct.
**Restriction:** Permission of Neuroscience Program.
**Repeatable to:** 12 credits.

**NEUR398 Neuroscience Honors Seminar (1 Credit)**
This seminar provides an opportunity for the honors students to share their research projects and sharpen their communication skills through presentations, discussions, and peer-review thesis writing. Guest speakers will be invited to provide additional information and insights into various topics in professional development practice, graduate school info and application, etc.
**Prerequisite:** NEUR200.
**Corequisite:** NEUR379, NEUR479, or equivalent research credit with instructor permission.
**Repeatable to:** 4 credits.

**NEUR405 Neuroscience Laboratory (3 Credits)**
Students will utilize neurophysiological techniques to examine fundamental principles of neurons and neural circuits. This course will reinforce content from prerequisite NEUR courses. Students will also strengthen skills in experimental design and scientific writing.
**Prerequisite:** NEUR306 or BSCI353; and PHYS132.
**Recommended:** NEUR305.
**Cross-listed with:** BSCI455.
**Credit Only Granted for:** PSYC401, NEUR405, BSCI455 or BSCI454.

**NEUR479 Advanced Research in Neuroscience (1-3 Credits)**
Research and/or integrated reading in neuroscience under the direction and close supervision of a faculty member.
**Prerequisite:** Complete at least 3 credits of NEUR379 (or equivalent) with the same faculty member as NEUR479 credit.
**Recommended:** Minimum neuroscience track GPA of 3.0.
**Restriction:** Permission of the Neuroscience Program.
**Repeatable to:** 12 credits.

# NFSC - Nutrition and Food Science

**NFSC100 Elements of Nutrition (3 Credits)**
Fundamentals of human nutrition. Nutrient requirements related to changing individual and family needs.

**NFSC103 Nutrition and Sports Performance (3 Credits)**
Nutrition and Sports Performance would give students a brief overview of positive health-related outcomes of a physically active lifestyle. Students would design a fitness regimen and be able to describe when and how glycogen, blood glucose, fat, and protein are used to meet energy needs during different types of physical activity. They would be able to differentiate between anaerobic and aerobic use of glucose, and identify advantages and disadvantages of each. This course would outline how to estimate and athlete's calorie need and discuss the general principles for meeting overall nutrient requirements in the training diet. The problems associated with rapid weight loss by dehydration and the importance of water and/or sports drinks during exercise would be examined. An understanding of the importance of staying well-nourished with carbohydrate, protein, and various vitamins and minerals before, during, and after training would be discussed.

**NFSC112 Food: Science and Technology (3 Credits)**
Introduction to the realm of food science, food technology and food processing. An overview of the largest industry in the U.S. with emphasis on the science of food and the technology of food preservation from harvest through processing and packaging to distribution and consumer utilization.

**NFSC220 Diet: Is it a cause or a solution (3 Credits)**
If diet is such a straightforward topic, then why and how does this simple matter result in complicated health problems? This course delves deeply into a Big Question at the intersection of diet and health. Diet is a topic that most people know but few people understand. In addition, diet has become one of the most important lenses for looking at a variety of social, economic, and cultural issues. Since the concept of diet is a continuum and has multifaceted aspects, we need to understand it from broad and multidisciplinary perspectives including social, cultural, and economic aspects.

**NFSC298 Sports Nutrition Internship Practicum (1 Credit)**
This internship allows students to gain hands on experience working in collegiate athletics. Students interact with an interdisciplinary team including registered dietitians, coaches, trainers, physicians and others to develop and enhance nutrition-related knowledge and skills. They also gain invaluable experience and exposure to the day-to-day duties of a collegiate sports dietitian. Students participate in a weekly 50-minute discussion that is held by two sports nutrition dietitians, and complete 9 hours per week hands on activities at Gossett Football Team House, Xfinity Center, and Varsity Team House.
**Prerequisite:** Must have completed or be concurrently enrolled in NFSC100; and permission of instructor; or students who have taken courses with comparable content may contact the department.
**Repeatable to:** 8 credits if content differs.

**NFSC315 Nutrition During the Life Cycle (3 Credits)**
A study of how development throughout life, including prenatal development, pregnancy, lactation, adolescence and aging, alter nutrient requirements. Students will apply this knowledge to the dietary needs and food choices of these different groups.
**Prerequisite:** Minimum grade of C- in NFSC100.

**NFSC350 Foodservice Operations (5 Credits)**
Introduction to management. Responsibilities in quantity food production and purchasing in a foodservice operation. Laboratory experience in planning, preparation, and service of meals which meet the nutritional needs of the consumer.
**Prerequisite:** Minimum grade of C- in BSCI223 and BMGT364.
**Restriction:** Must be in Nutrition and Food Science: Dietetics program.

**NFSC380 Methods of Nutritional Assessment (3 Credits)**
Methods of assessing human nutritional status of populations and individuals. These methods include dietary, anthropometric, clinical evaluations and biochemical measurements.
**Prerequisite:** Minimum of C- in NFSC315 and BCHM461.
**Restriction:** Must be in Nutrition and Food Science: Food Science program.

**NFSC386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Permission of AGNR-Nutrition and Food Science department.
**Restriction:** Junior standing or higher.
**Formerly:** FDSC386 and NUTR386.

**NFSC388 Honors Thesis Research (3-6 Credits)**
Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.
**Restriction:** Must be admitted to AGNR Honors Program.
**Repeatable to:** 6 credits if content differs.

**NFSC398 Seminar (1 Credit)**
Presentation and discussion of current literature and research in food science.
**Formerly:** FDSC398.

**NFSC399 Special Problems in Food Science (1-3 Credits)**
Designed for advanced undergraduates. Specific problems in food science will be assigned.
**Formerly:** FDSC399.

**NFSC412 Food Processing Technology (4 Credits)**
Provides in-depth study of the major industrial modes of food preservation. It integrates aspects of the biology, microbiology, biochemistry and engineering disciplines as they relate to food processing technology and food science.
**Prerequisite:** CHEM241, CHEM242, NFSC431, NFSC414, and NFSC434.
**Corequisite:** NFSC421 and NFSC423.
**Recommended:** MATH120; or completion of MATH220 recommended.

**NFSC414 Mechanics of Food Processing (4 Credits)**
Applications in the processing and preservation of foods, of power transmission, hydraulics, electricity, thermodynamics, refrigeration, instruments and controls, materials handling and time and motion analysis.
**Prerequisite:** PHYS121.
**Credit Only Granted for:** ENBE414 or NFSC414.
**Formerly:** ENBE414.

**NFSC416 Food Safety System (2 Credits)**
Focuses on identifying and reducing biological, chemical and physical risks in food manufacturing and thereby reduce outbreak incidences and improve public health. The course is based on the US FDA recognized curriculum on 'Hazard Analysis and Risk Based Preventive Controls' (HARPC) regulations for manufacturing human foods. A successful completion of this course will result in students becoming 'preventive controls qualified individuals' as defined by the US FDA.
**Restriction:** Permission of AGNR-Nutrition and Food Science department.
**Repeatable to:** 0 credit.
**Credit Only Granted for:** NFSC498T, NFSC416, NFSC679T, or NFSC616.
**Formerly:** NFSC498T.

**NFSC421 Food Chemistry (3 Credits)**
Basic chemical and physical concepts are applied to the composition and properties of foods. Emphasis on the relationship of processing technology to the keeping quality, nutritional value, and acceptability of foods.
**Prerequisite:** BCHM461.

**NFSC422 Food Product Research and Development (3 Credits)**
A capstone course for FDSC majors. A study of the research and development of new food products. Application of food technology, engineering, safety and packaging are integrated by teams of students to develop a new food product from concept to pilot plant scale-up. Students will travel to nearby food processing plants on two to four Saturdays during the semester.
**Restriction:** Senior standing; and must be in a major within AGNR-Nutrition and Food Science department; and permission of AGNR-Nutrition and Food Science department.
**Formerly:** FDSC422.

**NFSC423 Food Chemistry Laboratory (3 Credits)**
Analysis of the major and minor constituents of food using chemical, physical and instrumental methods in concordance with current food industry and regulatory practices. Laboratory exercises coincide with lecture subjects in NFSC421.
**Prerequisite:** Must have completed or be concurrently enrolled in NFSC421.

**NFSC425 International Nutrition (3 Credits)**
Nutritional status of world population; consequences of malnutrition on health and mental development; and local, national, and international programs for nutritional improvement.
**Prerequisite:** Must have completed one course in basic nutrition.

**NFSC426 Current Topics in Nutrition and Chronic Disease (3 Credits)**
Analysis of current topics related to diet, nutrition, and human health at cellular, molecular and biochemical level. Further, this course will provide overview of the current methods, and in vitro and in vivo model systems used in nutrition research. Syllabus includes topics relevant to dietary regulation of genes/proteins and their impact on both physiological and pathological conditions including hyperlipidemia, hyperglycemia, fibrosis, food allergy, nutraceuticals, inflammatory diseases (IBD), cardiovascular diseases (atherosclerosis and stenosis), and oncogenesis. This course is designed to help students to understand and apply current scientific concepts and research methods, and to obtain necessary skills in evaluation and interpretation of evidence based scientific data.
**Jointly offered with:** NFSC621.
**Credit Only Granted for:** NFSC498F, NFSC426, NFSC678F, or NFSC621.
**Formerly:** NFSC498F.

**NFSC430 Food Microbiology (3 Credits)**
A study of microorganisms of major importance to the food industry with emphasis on food-borne outbreaks, public health significance, bioprocessing of foods, disease control, and the microbial spoilage of foods.
**Prerequisite:** BSCI223; or permission of instructor.
**Credit Only Granted for:** ANSC430 or NFSC430.
**Formerly:** FDSC430.

**NFSC431 Food Quality Control (4 Credits)**
Definition and organization of the quality control function in the food industry; preparation of specifications; statistical methods for acceptance sampling; in-plant and processed product inspection. Instrumental and sensory methods for evaluating sensory quality, identity and wholesomeness and their integration into grades and standards of quality. Statistical Process Control (SPC).

**NFSC434 Food Microbiology Laboratory (3 Credits)**
A study of techniques and procedures used in the microbiological examination of foods.
**Prerequisite:** Must have completed or be concurrently enrolled in NFSC430.
**Credit Only Granted for:** NFSC434 or ANSC434.
**Formerly:** FDSC434.

**NFSC436 Diet and Optimal Human Health (3 Credits)**
Focuses on maintaining optimal health and preventing diseases in humans with attention to diet. Reviews the main causes (nutritional/behavioral/lifestyle/ environmental/genetic factors) of diseases and nutrient needs, sources, functions and interactions, and deals with the benefits of healthy diets and nutraceutical/pharmaceutical option on human health. The emphasis will be on developing conceptual knowledge, critical thinking and problem solving skills and the application of nutrition in the health promotion.
**Prerequisite:** NFSC100, BSCI170, and BSCI171 .
**Jointly offered with:** NFSC636.
**Credit Only Granted for:** NFSC498L, NFSC678L, NFSC436, or NFSC636.
**Formerly:** NFSC498L.

**NFSC440 Advanced Human Nutrition (4 Credits)**
A critical study of physiologic, molecular and metabolic influences on utilization of carbohydrates, lipids, proteins, vitamins, macro-and micro-minerals, and nonnutritive components of food. Interactions of these nutrients and food components will be examined relative to maintaining health.
**Prerequisite:** Minimum of C- in NFSC100, BCHM462 and BSCI440.

**NFSC450 Food and Nutrient Analysis (3 Credits)**
Methods and practices of the analysis of foods and nutrients. An overview of the principles and basic mechanisms used in many of the analytical procedures commonly used in food and nutrition research. Emphasis will be placed on hands-on development of skills necessary to complete each analytical procedure; and on the accurate and concise description of the methodology and results from their application and on the regulations governing food analysis for nutritional labeling.
**Prerequisite:** BCHM461 and NFSC100.
**Formerly:** NUTR450.

**NFSC455 Medical Nutrition Therapy I (4 Credits)**
Advanced clinical nutrition course for dietetics or nutrition science majors. Modifications of the normal adequate diet to meet human nutritional needs in acute and chronic diseases and metabolic disorders. Includes energy balance and weight management, nutritional genomics, nutrition counseling, autoimmune disease, nutrition for pediatric conditions.
**Prerequisite:** NFSC380.
**Corequisite:** NFSC440.

**NFSC456 Medical Nutrition Therapy II (4 Credits)**
Modifications of the normal adequate diet to meet human nutritional needs in acute and chronic diseases and metabolic disorders.
**Prerequisite:** Minimum of C- in NFSC380 and NFSC440; and permission of AGNR-Nutrition and Food Science department.

**NFSC470 Community Nutrition (3 Credits)**
Perspectives underlying the practice of nutrition services in community settings. Assessment of needs, program planning and evaluation. Programs and strategies to meet nutrition needs outside the acute care setting, such as nutrition education and food assistance. National nutrition policy and federal initiatives in nutrition will be examined. Students will be required to travel to local community nutrition sites during the semester.
**Prerequisite:** Minimum of C- in NFSC315.

**NFSC490 Special Problems in Nutrition (2-3 Credits)**
Individually selected problems in the area of human nutrition.
**Prerequisite:** NFSC440; and permission of AGNR-Nutrition and Food Science department.

**NFSC491 Professional Issues and Opportunities in Dietetics (3 Credits)**
A capstone course for dietetics majors. Students will integrate knowledge and theory of nutrition, food, management, psychology, and social behaviors necessary to support quality dietetic practice. Working in teams, students will participate in case studies, simulated situations and community projects. Individuals and groups will present cases as well as papers on published research.
**Prerequisite:** Minimum of C- in NFSC350 and permission of Nutrition and Food Science Dietetics program.
**Corequisite:** NFSC456.
**Restriction:** Senior standing or higher; and must be in Nutrition and Food Science: Dietetics program.

**NFSC498 Selected Topics (1-3 Credits)**
Selected current aspects of food.
**Restriction:** Permission of AGNR-Nutrition and Food Science department.
**Repeatable to:** 6 credits if content differs.

# PEER - Health Center

**PEER311 Peer Education Mental Health & Wellness (3 Credits)**
Designed to train students to become Peer Educators who are responsible for presenting to members of the campus community about issues surrounding stress management, mental illness, appropriate on/off campus resources, stigma, body image, helping a friend in distress, and other issues related to mental health and wellness, including bystander intervention. Programming is done in classroom settings, residence halls, and at tables during special events.
**Prerequisite:** Students must complete an interview before enrolling in this course.
**Restriction:** Permission of instructor; and minimum cumulative GPA of 2.5.
**Credit Only Granted for:** HLTH381 or PEER311.
**Formerly:** HLTH 381.
**Additional Information:** Students are required to attend a 40-hour training the week before classes begin which will equip them with the information and tools necessary to provide outreach as early as the first week of the Fall classes. Some evening and weekend hours may be required.

**PEER312 Peer Education: Preventing Power-Based Violence (3 Credits)**
Designed to train students to become Peer Educators who are responsible for presenting to members of the campus community about the complex dynamics surrounding issues of power-based personal violence. This includes: sexual assault, relationship violence, stalking, bystander intervention, consent, and rape culture. Students fully learn the on and off-campus resources for victim/survivors. Programming is done in classroom settings, residence halls, Greek life spaces, and at tables during special events.
**Prerequisite:** Students must complete an interview before enrolling in this course.
**Restriction:** Permission of instructor; and minimum cumulative GPA of 2.5.
**Credit Only Granted for:** HLTH382 or PEER312.
**Formerly:** HLTH382.
**Additional Information:** Students are required to attend a 40-hour training the week before classes begin which will equip them with the information and tools necessary to provide outreach as early as the first week of the Fall classes. Some evening and weekend hours may be required.

**PEER313 Peer Education: Alcohol and Other Drugs Education (3 Credits)**
Designed to train students to become Peer Educators who are responsible for presenting to members of the campus community about issues surrounding substance use, including (but not limited to) alcohol, marijuana, and various other drugs, providing information about campus services for those with substance use related issues, and educating students about other topics related to harm reduction strategies and promoting students' overall well-being, including bystander intervention. Programming is done in classroom settings, residence halls, and at tables during special events.
**Prerequisite:** Students must complete an interview before enrolling in this course.
**Restriction:** Permission of instructor; and minimum cumulative GPA of 2.5.
**Credit Only Granted for:** HLTH380 or PEER313.
**Formerly:** HLTH380.
**Additional Information:** Students are required to attend a 40-hour training the week before classes begin which will equip them with the information and tools necessary to provide outreach as early as the first week of the Fall classes. Some evening and weekend hours may be required.

**PEER314 Peer Education: Sexual Health & Wellness (3 Credits)**
Designed to train students to become Peer Educators who are responsible for presenting to members of the campus community about issues surrounding Sexually Transmitted Infections, sexual health testing and screening, birth control options, healthy sexuality, consent and communication, condoms and other barrier protection, campus sexual health services, and other issues related to sexual well being including bystander intervention. Programming is done in classroom settings, residence halls, and at tables during special events.
**Prerequisite:** Students must complete an interview before enrolling in this course.
**Restriction:** Permission of instructor; and minimum cumulative GPA of 2.5.
**Credit Only Granted for:** HLTH383 or PEER314.
**Formerly:** HLTH383.
**Additional Information:** Students are required to attend a 40-hour training the week before classes begin which will equip them with the information and tools necessary to provide outreach as early as the first week of the Fall classes. Some evening and weekend hours may be required.

**PEER318 CARE Peer Advocacy (3 Credits)**
Designed to train students to become Peer Advocates who are responsible for providing crisis and short-term support services for victims of sexual assault, relationship violence, stalking, sexual harassment and child abuse.Students will be meeting with clients and providing emotional support and resources (both on and off campus). During weekly classes, students will be trained in trauma-informed crisis intervention procedures that will not only help them assist clients during in- person sessions but will help them support clients via the crisis cell. Students will be expected to maintain the crisis cell (on a shared basis)throughout the semester as well as maintain 10 hours per week in the CARE office. In addition to maintaining the crisis cell and office hours, during the spring semester students will be tasked with working as a team in planning and executing a Take Back the Night event.
**Prerequisite:** Students must complete an interview before enrolling in this course; and permission of instructor.
**Recommended:** PSYC100 and HLTH377.
**Restriction:** Permission of instructor; and minimum cumulative GPA of 2.5; and students must sign up for the same course in the spring semester; and students are only permitted to enroll in the repeatable year long course once during their academic career. If students wish to continue working with the office after the course has been completed (Fall and Spring), they can do so on a volunteer basis; and must not have taken HLTH382 as a CARE Advocate course.
**Repeatable to:** 6 credits.
**Additional Information:** Students are required to attend a 40-hour training the week before classes begin which will equip them with the information and tools necessary to provide outreach as early as the first week of the Fall classes. Some evening and weekend hours may be required (crisis cell and special events).

**PEER319 CARE to Stop Violence Outreach Peer Program (3 Credits)**
A two semester, 6-credit course designed to train students in the knowledge, values and skills to build professional relationships and become leaders in community development related to the social justice issue of sexual misconduct with emphasis on the college campus environment.
**Prerequisite:** Permission of instructor; and students must complete an interview before enrolling in this course.
**Restriction:** Permission of instructor; and minimum cumulative GPA of 2.5; and students must sign up for the same course in the spring semester; and students are only permitted to enroll in the repeatable year long course once during their academic career. If students wish to continue working with the office after the course has been completed (Fall and Spring), they can do so on a volunteer basis; and must not have taken HLTH382 as a CARE Outreach course.
**Repeatable to:** 9 credits.
**Formerly:** HLTH382.
**Additional Information:** Students are required to attend a 40-hour training the week before classes begin which will equip them with the information and tools necessary to provide outreach as early as the first week of the Fall classes. Some evening and weekend hours may be required.

**PEER321 Advanced Peer Education Mental Health and Wellness (3 Credits)**
PEER 321 is a three-credit, interdisciplinary course building upon the stress management, mental illness, appropriate on/off campus resources, stigma, body image, helping a friend in distress, bystander intervention, and mental health/wellness knowledge gained during PEER 311. Students will gain a fundamental understanding of program planning basics through a series of assignments where they theoretically plan their own prevention or awareness program for the University of Maryland campus community. Students who become a Peer Leader during year two may have the opportunity to implement this program on campus. This course also provides advanced training in the skills necessary to serve as an effective Peer Educator under the University Health Center. Peer Educators will continue to provide outreach and education to the campus community through various outreach events, workshops, and more.
**Prerequisite:** Students must complete an interview before enrolling in this course; and minimum grade of B- in PEER311.
**Restriction:** Minimum cumulative GPA of 2.5; and permission of instructor.
**Credit Only Granted for:** HLTH381 or PEER321.
**Formerly:** HLTH381.
**Additional Information:** In addition to the weekly class lectures and experiential learning opportunities facilitating educational outreach on campus, advanced peer educators will meet weekly in groups. These group meetings will provide a space for the students to incorporate class content to enhance the design, development, and evaluation of a sexual assault prevention or awareness program for the University of Maryland campus community. Coordinators will meet with student groups to facilitate and supervise this process.

**PEER322 Advanced Peer Education: Preventing Power-Based Violence (3 Credits)**
PEER 322 is a three-credit, interdisciplinary course building upon the sexual assault, relationship violence, stalking, bystander intervention, and wellness knowledge gained during PEER 312. Students will gain a fundamental understanding of program planning basics through a series of assignments where they theoretically plan their own prevention or awareness program for the University of Maryland campus community. Students who become a Peer Leader during year two may have the opportunity to implement this program on campus. This course also provides advanced training in the skills necessary to serve as an effective Peer Educator under the University Health Center. Peer Educators will continue to provide outreach and education to the campus community through various outreach events, workshops, and more.
**Prerequisite:** Students must complete an interview before enrolling in this course; and minimum grade of B- in PEER312.
**Restriction:** Minimum cumulative GPA of 2.5; and permission of instructor.
**Credit Only Granted for:** HLTH382 or PEER322.
**Formerly:** HLTH382.
**Additional Information:** In addition to the weekly class lectures and experiential learning opportunities facilitating educational outreach on campus, advanced peer educators will meet weekly in groups. These group meetings will provide a space for the students to incorporate class content to enhance the design, development, and evaluation of a sexual assault prevention or awareness program for the University of Maryland campus community. Coordinators will meet with student groups to facilitate and supervise this process.

**PEER323 Advanced Peer Education: Alcohol and Other Drugs Education (3 Credits)**
PEER 323 is a three-credit, interdisciplinary course building upon the alcohol and other drugs (AOD) education knowledge gained during PEER 313. Students will gain a fundamental understanding of program planning basics through a series of assignments where they theoretically plan their own wellness program for the University of Maryland campus community. Students who become Peer Leaders during year two (PEER338) may have the opportunity to implement this program on campus. This course also provides advanced training in the skills necessary to serve as an effective Peer Educator under the University Health Center. Peer Educators will continue to provide outreach and education to the campus community through various outreach events, workshops, and more.
**Prerequisite:** Students must complete an interview before enrolling in this course; and minimum grade of B- in PEER313.
**Restriction:** Minimum cumulative GPA of 2.5; and permission of instructor.
**Credit Only Granted for:** HLTH380 or PEER323.
**Formerly:** HLTH380.
**Additional Information:** In addition to the weekly class lectures and experiential learning opportunities facilitating educational outreach on campus, advanced peer educators will meet weekly in groups. These group meetings will provide a space for the students to incorporate class content to enhance the design, development, and evaluation of an alcohol and other drugs education program for the University of Maryland campus community. Coordinators will meet with student groups to facilitate and supervise this process.

**PEER324 Advanced Peer Education: Sexual Health & Wellness (3 Credits)**
PEER 324 is a three-credit, interdisciplinary course building upon the sexual health and wellness knowledge gained during PEER 314. Students will gain a fundamental understanding of program planning basics through a series of assignments where they theoretically plan their own wellness program for the University of Maryland campus community. Students who become Peer Leaders during year two (PEER338) may have the opportunity to implement this program on campus. This course also provides advanced training in the skills necessary to serve as an effective Peer Educator under the University Health Center. Peer Educators will continue to provide outreach and education to the campus community through various outreach events, workshops, and more.
**Prerequisite:** Students must complete an interview before enrolling in this course; and minimum grade of B- in PEER314.
**Restriction:** Minimum cumulative GPA of 2.5; and permission of instructor.
**Credit Only Granted for:** HLTH383 or PEER324.
**Formerly:** HLTH383.
**Additional Information:** In addition to the weekly class lectures and experiential learning opportunities facilitating educational outreach on campus, advanced peer educators will meet weekly in groups. These group meetings will provide a space for the students to incorporate class content to enhance the design, development, and evaluation of a sexual health and wellness program for the University of Maryland campus community. Coordinators will meet with student groups to facilitate and supervise this process.

**PEER338 PEER LEADERSHIP AND EDUCATION (3 Credits)**
An interdisciplinary independent study designed to enhance the scope of learning around UHC peer education topics and train students to serve as leaders for those enrolled in first year peer courses, PEER31X and PEER32X. Second year peers are trained to facilitate intersectional and advanced health education dialogue, as well as serve in leadership roles for the course in which they were previously enrolled, PEER31X and PEER32X. Additionally, Peer Leader responsibilities include creating and implementing campus wide events to promote learning around the intersections between UHC peer education group topics (power-based violence, sexual health, alcohol and other drugs, stress and mental health). Peer Leaders will have different responsibilities based on the programmatic needs and goals of the semester.
**Prerequisite:** 1 course with a minimum grade of B- from (PEER321, PEER322, PEER323, PEER324).
**Restriction:** Minimum cumulative GPA of 3.0.
**Repeatable to:** 6 credits.

# PERS - Persian

**PERS101 Elementary Persian I (4 Credits)**
Introduction to the alphabet, pronunciation patterns, greetings, basic structures, and other fundamentals, with emphasis on oral and aural skills.
**Prerequisite:** Must have appropriate Foreign Language Placement Test (FLPT) score.
**Restriction:** Must not be native/fluent speaker of Persian.

**PERS102 Elementary Persian II (4 Credits)**
Continuation of PERS101 with emphasis on the use of formal language, vocabulary building, and reading.
**Prerequisite:** PERS101; or must have appropriate Foreign Language Placement Test (FLPT) score.
**Restriction:** Must not be native/fluent speaker of Persian.

**PERS105 Intensive Elementary Persian I (6 Credits)**
Intensive training in spoken and written Persian at elementary level. Basic literacy skills, vocabulary, pronunciation and grammar developed through a highly interactive approach. Substantial cultural component familiarizing students with cultural themes related to Iran and the Persian speaking world. Taught in Persian.
**Prerequisite:** Must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Open to beginning learners of Persian only.

**PERS106 Intensive Elementary Persian II (6 Credits)**
Intensive training in spoken and written Persian at elementary level (ACTFL Novice High to Intermediate Low). Continues building basic literacy skills, vocabulary, and grammar through highly a interactive approach. Substantial cultural component familiarizing students with cultural themes related to Iran and the Persian speaking world. Taught in Persian.
**Prerequisite:** Pre-requisite: PERS105, or equivalent, as determined by the WLPT (World Language Placement Test).

**PERS201 Intermediate Persian I (3 Credits)**
Development of speaking, reading, writing, listening and cultural knowledge through wide variety of activities.
**Prerequisite:** PERS102; or Must have appropriate Foreign Language Placement Test (FLPT) score.
**Restriction:** Must not be native/fluent speaker of Persian.

**PERS202 Intermediate Persian II (3 Credits)**
Further development of speaking, writing, listening and cultural knowledge, with special focus on culture.
**Prerequisite:** PERS201; or Must have appropriate Foreign Language Placement Test (FLPT) score.
**Restriction:** Must not be native/fluent speaker of Persian.

**PERS205 Intensive Intermediate Persian I (6 Credits)**
Development of Persian language proficiency and cultural knowledge at the intermediate level (Intermediate-Mid on ACTFL scale). Taught in Persian.
**Prerequisite:** PERS106; or equivalent as determined by World Language Placement Test (WLPT).

**PERS206 Intensive Intermediate Persian II (6 Credits)**
Designed to further develop Persian language proficiency and cultural knowledge at an intermediate level (Intermediate High on ACTFL scale). Taught in Persian.
**Prerequisite:** PERS205; or equivalent, as determined by the WLPT (World Language Placement Test).

**PERS211 Intermediate Conversation (3 Credits)**
Development of aural and oral skills in Persian. Various genres and registers of speech. Special focus on contemporary daily life, with use of up-to-date media sources.
**Prerequisite:** PERS102; or students who have taken courses with comparable content may contact the department.
**Recommended:** Concurrent enrollment in PERS201.

**PERS212 Intermediate Reading in Persian (3 Credits)**
Focus on linguistic skill specific to reading; introduction to written traditions of Persian.
**Prerequisite:** PERS211 and PERS201; or permission of instructor.
**Corequisite:** PERS202; or permission of instructor.

**PERS251 Modern Iran (3 Credits)**
General sociopolitical introduction to modern Iran from establishment of the Qajar dynasty in the late 18th century to the present day. Taught in English.
**Cross-listed with:** HIST219X.
**Credit Only Granted for:** PERS251 or HIST219X.

**PERS252 Gender and Body in Iran (3 Credits)**
Multidisciplinary approach to key topics concerning gender and body in Iran, to include insights from religion, history, sociology, anthropology, disability studies, travel literature, arts, and fashion. Taught in English.
**Credit Only Granted for:** WMST298J, or PERS252.

**PERS269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**PERS280 Art Activism in Iran (3 Credits)**
Explores Iranian artists' intent and hope for change and their critical and playful strategies of making a difference through their visual or performing arts created since 1980. While exploring key concepts, contexts, and debates by examining a variety of artworks, we explore diverse and unique transgressive stories, strategies, and styles that these works present to address themes of social justice through the art. We examine how multimedia art forms (dance, theatre, cinema, painting, digital art, and music) empower Iranian artists to practice their identity and exercise their agency as these aspects intersect with race, ethnicity, class, sexuality, ability, and education in a shifting and multilayered context.
**Credit Only Granted for:** PERS289M, ARTH389O, or PERS280.
**Formerly:** PERS298M.

**PERS283 Iranian Cinema (3 Credits)**
Introduction to Iranian cinema, society, and culture. Taught in English.
**Cross-listed with:** CINE283.
**Credit Only Granted for:** PERS283, CINE283 or FILM298B.

**PERS298 Special Topics in Persian Studies (1-3 Credits)**
Special topic to be announced when course is offered.
**Repeatable to:** 9 credits if content differs.

**PERS299 Directed Study in Persian Language (1-3 Credits)**
Directed study in Persian. Taught in Persian.
**Prerequisite:** PERS202; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**PERS301 Advanced Persian I (3 Credits)**
Development of speaking, reading, writing, listening and cultural knowledge through wide variety of activities, especially reading.
**Prerequisite:** PERS202; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Must not be native/fluent speaker of Persian.

**PERS302 Advanced Persian II (3 Credits)**
Further development of speaking, reading, writing, listening and cultural knowledge, with special focus on reading, in a variety of literary genres.
**Prerequisite:** PERS301; or students who have taken courses with comparable content may contact the department.
**Restriction:** Must not be native/fluent speaker of Persian.

**PERS305 Intensive Advanced Persian I (6 Credits)**
Development of Persian language proficiency and cultural competence at an advanced level (Advanced Low on ACTFL scale). Taught in Persian.
**Prerequisite:** Must have completed PERS206; or equivalent as determined by World Language Placement Test (WLPT).

**PERS306 Intensive Advanced Persian II (6 Credits)**
Continued development of Persian language proficiency at an Advanced Mid level on ACTFL scale through a whole language approach integrating listening, speaking, reading and writing. Taught in Persian.
**Prerequisite:** PERS305; or equivalent as determined by WLPT (World Language Placement Test).

**PERS311 Persian Media (3 Credits)**
Examines issues, values, institutions of the contemporary Persian and Persianete world, primarily through analysis and discussion of current events as reported in the written and audiovisual press. Focus will be on increasing content knowledge as well as linguistic competency in Persian. Taught in Persian.
**Prerequisite:** PERS301; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**PERS312 Contemporary Iranian Culture (3 Credits)**
Study of the culture of contemporary Iran (post-evolution) with focus on the contemporary social, political, literary and artistic life in Iran. Taught in Persian.
**Prerequisite:** PERS301; or students who have taken courses with comparable content may contact the department.
**Restriction:** Must not be native/fluent speaker of Persian.

**PERS353 Iranian Life in Literature and Film (3 Credits)**
Treats major themes in modern literature and life of Iranians. Topics examined include Iranian identity, religious traditions, modern life, and expatriate communities. Taught in English.

**PERS369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**PERS371 Introduction to Persian Literature in Translation (3 Credits)**
Introduction to classical and modern canons of Persian literature in historical, esthetic, and social context. Taught in English.

**PERS385 Theatre and Dance in Iran and Afghanistan (3 Credits)**
Students will learn about stories, plays, and movements in Iran and Afghanistan from past to present. Through watching performances, readings, and discussions, we explore the relationship between storytelling, body, space, and power in forming and performing identity and life experiences. Looking at case studies from traditional, popular, and western style dance and theater are an exciting part of the course. Note: This course requires no prior knowledge of Persian culture or dance and theatre studies on the part of the students.
**Cross-listed with:** TDPS358A, THET328W.
**Repeatable to:** 3 credits if content differs.
**Credit Only Granted for:** TDPS358A, THET328W, PERS398A, or PERS385.
**Formerly:** PERS398A.

**PERS386 Experiential Learning (3-6 Credits)**
Pre-professional experience in research, analysis and writing in a work setting. Project proposal approved by faculty and internship sponsor.
**Restriction:** Permission of ARHU-School of Languages, Literatures, and Cultures department.

**PERS398 Special Topics in Persian Studies (1-3 Credits)**
Special topic to be announced when course is offered. Taught in Persian.
**Prerequisite:** PERS301; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**PERS399 Directed Study in Persian (1-3 Credits)**
Directed study with faculty supervision.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Sophomore standing or higher.
**Repeatable to:** 9 credits if content differs.

**PERS402 Persian Translation (3 Credits)**
Focuses on hands-on practice of English/Persian and Persian/English translation as well as the problematic issues of translation. Taught in Persian.
**Prerequisite:** PERS302; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**PERS405 Media and the Current Issues in Iranian Society (6 Credits)**
Develops Persian language proficiency and domain-specific knowledge at advanced-mid to advanced-high level on ACTFL scale. Enhances linguistic and cultural competence. Provides a broad understanding of some of the current social, political and economic issues in modern Iran. Taught in Persian.
**Prerequisite:** PERS306; or equivalent as determined by WLPT (World Language Placement Test).

**PERS406 Practicum in Persian Translation (6 Credits)**
Provides opportunities for translation, interpretation, and analysis of various authentic oral and written texts (both English to Persian and Persian to English). Facilitates the development of Persian language proficiency at advanced level through a task-based approach that integrates all the language skills in pedagogical translation activities.
**Prerequisite:** PERS306; or equivalent as determined by the WLPT (World Language Placement Test).

**PERS498 Special Topics in Persian Studies (3 Credits)**
Topic and language to be announced when offered.
**Prerequisite:** Permission of instructor.
**Repeatable to:** 9 credits if content differs.

# PHIL - Philosophy

**PHIL100 Introduction to Philosophy (3 Credits)**
An introduction to the literature, problems, and methods of philosophy either through a study of some of the main figures in philosophic thought or through an examination of some of the central and recurring problems of philosophy.

**PHIL140 Contemporary Moral Issues (3 Credits)**
The uses of philosophical analysis in thinking clearly about such widely debated moral issues as abortion, euthanasia, homosexuality, pornography, reverse discrimination, the death penalty, business ethics, sexual equality, and economic justice.

**PHIL170 Introduction to Symbolic Logic (3 Credits)**
This course will introduce the basic concepts and techniques of modern symbolic logic, with an emphasis on developing skills in two areas: first, translating between ordinary language and logical notation; second, establishing the validity or invalidity of arguments using the methods of truth tables, deductions, and countermodels. Although the subject of symbolic logic was developed by mathematicians and philosophers for their own special purposes (which we will discuss), logical concepts and techniques have found applications in a variety of disciplines, including computer science, economics, law, linguistics, and psychology. We may also consider some of these applications.

**PHIL171 Reasoning For Humans: Clear Thinking in an Uncertain World (3 Credits)**
Reasoning is a transition in thought in which some beliefs or thoughts provide grounds or reasons for others. What makes certain transitions of thought rational or reasonable and others irrational or erratic is a major focus of investigation in diverse research areas, such as philosophy, logic, artificial intelligence, cognitive science, and psychology. This course is an introduction to logic and probability with a focus on applications to the study of the foundations of human reasoning.
**Credit Only Granted for:** PHIL171 or PHIL218A.
**Formerly:** PHIL218A.

**PHIL201 Spooky Action at a Distance? Where Physics Meets Metaphysics (3 Credits)**
Einstein believed that physics should represent a "reality in space and time, free from spooky action at a distance." He worried that quantum theory failed this test. Later developments suggest that quantum systems really can influence one another instantly, no matter how far apart they are, but the question remains controversial and experiments are not sufficient to provide an answer. This self-contained course will draw on philosophy and physics to investigate the controversy.
**Recommended:** Students should be comfortable with moderately mathematical presentations. Placement into MATH110 or higher is strongly recommended.
**Credit Only Granted for:** PHIL201 or PHIL209I.
**Formerly:** PHIL209I.

**PHIL202 Know Thyself: Wisdom Through Cognitive Science (3 Credits)**
How do we improve our decision making? Cognitive science demonstrates that self-knowledge isn't as easy as we think, and that there are numerous biases and fallacies that impact our decision-making in ways that are hard for us to be aware of. In this course you will learn what some of these are and how they have been discovered, and you will explore potential strategies for avoiding these fallacies and for making wiser choices.
**Credit Only Granted for:** PHIL209N or PHIL202.
**Formerly:** PHIL209N.

**PHIL203 The Rights and Wrongs of Killing People (3 Credits)**
Virtually everyone thinks it's permissible to kill people only in special circumstances. But why is killing usually wrong? Is it ever acceptable to kill an innocent human being intentionally? This course raises these and related questions and examines cases such as terrorism, suicide, abortion, euthanasia, the death penalty, war. Except for a brief discussion of animals, all the controversies considered deal with killing and causing death to human beings.
**Credit Only Granted for:** PHIL209J or PHIL203.
**Formerly:** PHIL209J.

**PHIL204 Happiness (3 Credits)**
What does the discipline of philosophy teach us about happiness? This course explores how philosophers have addressed questions about the nature of happiness and its role in the good human life. Questions to be addressed include: what is it to be happy? What social, economic, and political institutions foster and support human happiness? Can an immoral person be happy? And is a happy life the same as a meaningful life?
**Credit Only Granted for:** PHIL209E or PHIL204.
**Formerly:** PHIL209E.

**PHIL205 Are Sports Ethical? (3 Credits)**
Things happen routinely in sports that would seem morally unacceptable in other context: violence between the participants, attempts to trick the referee, fans hoping that some players would do embarrassingly badly, spectators feeling anger towards whole nations. Nonetheless, all of this may seem reasonable and even justifiable within a sporting context. This course will investigate the ethical structure of sports, and what it tells us about the ethics of everyday life. Philosophy will provide the primary disciplinary context, but we will also think about sociological, legal and anthropological perspectives on sports. Issues will include the nature of sportsmanship, what types of violence in sports are acceptable, drug use in sports, what it means to be a fan (for example, asking why loyalty to your team is valuable) and how our view of sports interacts with our view of nations. By the end of the course you should have gained familiarity with a variety of ethical concepts and a sensitivity to the ethical issues in sports. You should also find that by thinking about morality in the context of sports, you will look at larger ethical issues in new ways.
**Credit Only Granted for:** PHIL205, PHIL209G, or HONR229E.
**Formerly:** HONR229E.

**PHIL209 Philosophical Issues (3 Credits)**
An examination of selected philosophical issues of general interest.
**Repeatable to:** 6 credits if content differs.

**PHIL210 Philosophy of the Universe (3 Credits)**
An exploration of how philosophy can help us understand our place in the cosmos. The course covers a variety of topics at the intersection of science and philosophy, such as: How does the world we observe emerge from the microscopic world science tells us about? What are laws of nature? What is time? What is life? The emphasis is not on leading students to particular conclusions about these topics. Instead, it is to learn how to ask these questions critically and to understand what would count as relevant evidence for an answer.
**Credit Only Granted for:** PHIL209U or PHIL210.
**Formerly:** PHIL209U.

**PHIL211 AI & ETHICS (3 Credits)**
An introduction to a major subfield of contemporary Philosophy, namely applied ethics, and the experience of using some major tools in the practice of philosophy more generally, namely, the construction and formal evaluation of arguments, conceptual analysis, the use of thought experiments, and clear, direct and persuasive writing. Learning how to execute the latter will involve an intense iterative process. The substantive focus of the course will be the ethical evaluation of Artificial Intelligence (AI) in some of its current and potentially future incarnations. We'll examine algorithmic opacity, algorithmic bias and decision-making, autonomous weapons systems, human-robot interaction, and artificial moral agents, in order to uncover what, if any, ethical issues they give rise to.
**Credit Only Granted for:** PHIL209D or PHIL211.
**Formerly:** PHIL209D.

**PHIL218 Issues in in Epistemology/Metaphysics (3 Credits)**
An examination of selected philosophical issues in epistemology or metaphysics.
**Repeatable to:** 12 credits if content differs.
**Additional Information:** Counts toward the epistemology/metaphysics requirement for the Philosophy major.

**PHIL220 Bioethics: Regulating Right and Wrong (3 Credits)**
Bioethicists formulate ethical guidelines. They answer questions such as: When life-saving health resources are scarce, who should get them? Should we increase supply of one such resource, kidneys, by buying them from living "donors"? If drug trials in developing countries benefit patients who consent to participate, are the trials ethical, even if the same research would be forbidden in the US? If a sick person aims to hasten her death, how, if at all, might her doctor permissibly help her? In this course, students construct and defend ethical rules in four domains: research ethics, allocation of scarce resources, markets in organs, and physician-assisted dying.
**Credit Only Granted for:** PHIL209A or PHIL220.
**Formerly:** PHIL209A.

**PHIL228 Issues in History of Philosophy (3 Credits)**
An examination of selected issues in the history of philosophy.
**Repeatable to:** 12 credits if content differs.
**Additional Information:** Counts toward the history of philosophy requirement for the Philosophy major.

**PHIL234 Fundamental Concepts of Judaism (3 Credits)**
A conceptional introduction to Judaism, analyzing its fundamental concepts from both analytical and historical perspectives. Discussion of "normative" Judaism as well as other conceptions of Judaism. Topics include: God, the Jewish people, authority, ethics, the sacred and the profane, particularism and universalism.
**Cross-listed with:** JWST250, RELS250.
**Credit Only Granted for:** JWST250, PHIL234, or RELS250.

**PHIL235 Authority, Faith, and Reason in Judaism (3 Credits)**
A broad survey of the concepts of authority, faith, and reason in Jewish tradition from the Bible to the modern period, and their interrelationships.

**PHIL236 Philosophy of Religion (3 Credits)**
A philosophical study of some of the main problems of religious thought: the nature of religious experience, the justification of religious belief, the conflicting claims of religion and science, and the relation between religion and morality.
**Cross-listed with:** RELS236.
**Credit Only Granted for:** PHIL236 or RELS236.

**PHIL238 Issues in Value Theory (3 Credits)**
An examination of selected issues in ethics, aesthetics, political philosophy and related areas.
**Repeatable to:** 12 credits if content differs.
**Additional Information:** Counts toward the value theory requirement for the Philosophy major.

**PHIL245 Political and Social Philosophy I (3 Credits)**
A critical examination of such classical political theories as those of Plato, Hobbes, Locke, Rousseau, Mill, Marx, and such contemporary theories as those of Hayek, Rawls, and recent Marxist thinkers.

**PHIL250 Philosophy of Science I (3 Credits)**
Main issues in the philosophy of science. Special attention to the ways scientific developments have influenced the philosophy of science and how philosophy of science has influenced scientific progress. Case studies of selected historical episodes in which science and philosophy have interacted significantly, focusing on the physical, biological, or social sciences.

**PHIL256 Philosophy of Biology I (3 Credits)**
Issues in the discovery and justification of biological theories and models. Focus on cases from twentieth century biology, such as the genetic revolution or evolutionary theory.

**PHIL261 Philosophy of the Environment (3 Credits)**
An evaluation of different kinds of arguments for the claim that the natural environment should be preserved. Perspectives cut across the disciplines of philosophy (environmental ethics and philosophies of nature); economics (cost-benefit analysis); and biology (evolution, ecology, environmental studies).
**Credit Only Granted for:** HONR218F or PHIL261.
**Formerly:** HONR218F.

**PHIL269 Speical Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**PHIL271 Symbolic Logic (3 Credits)**
This course provides students with a thorough treatment of the basic concepts and techniques of modern symbolic logic, through classical first-order logic with identity. We will concentrate on the construction of natural deduction proofs and on the evaluation of logical statements in semantic models. Along the way, we will study some of the concepts from set theory (sets, functions, relations) used in the definition of semantic models for logical systems. We may also introduce some alternative, or non-classical logics. Although the subject of symbolic logic was developed by mathematicians and philosophers for their own special purposes (which we will discuss), logical concepts and techniques have found applications in a variety of disciplines, including computer science, economics, law, linguistics, and psychology. We may also consider some of these applications.
**Recommended:** PHIL170.

**PHIL282 Free Will & Determinism (3 Credits)**
A study of the main positions and arguments in the free will debate in contemporary analytic philosophy.

**PHIL308 Studies in Contemporary Philosophy (3 Credits)**
Problems, issues, and points of view of current interest in philosophy.
**Prerequisite:** 6 credits in PHIL courses.
**Repeatable to:** 6 credits if content differs.

**PHIL309 Philosophical Problems (3 Credits)**
A focused study of a contemporary philosophical problem or issue. Topics will vary, but the course will encourage students to to generate critical analyses or proposed resolutions of issues in the contemporary philosophical literature.
**Prerequisite:** 6 credits in PHIL courses.
**Repeatable to:** 12 credits if content differs.

**PHIL310 Ancient Greek and Roman Philosophy (3 Credits)**
A study of the origins and development of philosophy in ancient Greece and Rome, focusing on Socrates, Plato, Aristotle, the Epicureans, and Stoics.
**Prerequisite:** Must have completed 6 credits in philosophy or classics.

**PHIL313 From the Stoa to Silicon Valley: Ancient and Modern Approaches to Stoic Philosophy (3 Credits)**
Stoicism, ancient Rome's most popular philosophy, posited that virtue is the only human good and that individuals must detach themselves emotionally from the material world in order to live ethical lives. Principles of Stoic philosophy will be explored together with the wide array of artistic, political, and intellectual traditions that have drawn inspiration from it, from the Haitian revolutionary movement of the late 18th century, to the sexist "manosphere" of Reddit and Twitter, to modern cognitive-behavioral therapy.
**Cross-listed with:** CLAS313, PHPE313.
**Credit Only Granted for:** CLAS313, PHIL313, or PHPE313.

**PHIL318 Studies in Epistemology/Metaphysics (3 Credits)**
Problems, issues, and points of view in epistemology or metaphysics.
**Prerequisite:** 1 course in PHIL.
**Repeatable to:** 12 credits if content differs.
**Additional Information:** Counts toward the epistemology/metaphysics requirement for the Philosophy major.

**PHIL320 Knowing Oneself and Knowing the World: Early Modern Philosophy from Descartes to Kant (3 Credits)**
A study of major philosophical issues of the 16th, 17th, and 18th centuries through an examination of such philosophers as Descartes, Spinoza, Leibniz, Cavendish, Locke, Berkeley, Hume and Kant
**Prerequisite:** 6 credits in PHIL courses; or permission of instructor.

**PHIL328 Studies in the History of Philosophy (3 Credits)**
Problems, issues, and points of view in the history of philosophy.
**Prerequisite:** 6 credits in PHIL courses.
**Repeatable to:** 6 credits if content differs.

**PHIL332 Philosophy of Beauty (3 Credits)**
Philosophical theories, historical and contemporary, of beauty, sublimity, and other aesthetic qualities, of aesthetic experience, and of aesthetic judgment.
**Prerequisite:** 3 courses in PHIL; or permission of ARHU-Philosophy department.

**PHIL338 Studies in Value Theory (3 Credits)**
Problems, issues and points of view in ethics, aesthetics, political philosophy and related areas.
**Prerequisite:** 1 course in PHIL.
**Repeatable to:** 12 credits if content differs.
**Additional Information:** Counts toward the value theory requirement for the Philosophy major.

**PHIL341 Ethical Theory (3 Credits)**
A critical examination of classical and contemporary systems of ethics, such as those of Aristotle, Kant, Mill, and Rawls.
**Prerequisite:** 6 credits in PHIL courses.

**PHIL344 Philosophy of Race (3 Credits)**
A survey of philosophical arguments involving race and racism. Guiding questions will include: How have philosophers and scientists conceived of the concept of race? Is race a coherent concept? Does it help us explain differences in performance and behavior? What makes racism, racial prejudice, and discrimination wrong? What is the point of equality? Do we owe reparations to victims of racism?
**Credit Only Granted for:** PHIL344 or PHIL308Y.
**Formerly:** PHIL308Y.

**PHIL347 Philosophy of Law (3 Credits)**
Examination of fundamental concepts related to law, e.g. legal systems, law and morality, justice, legal reasoning, responsibility.
**Credit Only Granted for:** PHIL347 or PHIL447.
**Formerly:** PHIL447.

**PHIL360 Philosophy of Language (3 Credits)**
The nature and function of language and other forms of symbolism from a philosophical perspective.
**Prerequisite:** LING311; or 2 courses in PHIL and (PHIL170 or PHIL370); or permission of ARHU-Philosophy department.
**Cross-listed with:** LING350.
**Credit Only Granted for:** LING350 or PHIL360.

**PHIL362 Theory of Knowledge (3 Credits)**
Some central topics in the theory of knowledge, such as perception, memory, knowledge, and belief, skepticism, other minds, truth, and the problems of induction.
**Prerequisite:** 6 credits in PHIL courses; and PHIL170.
**Formerly:** PHIL462.

**PHIL364 Metaphysics (3 Credits)**
The study of some central metaphysical concepts and issues including the nature and validity of metaphysical thinking, universals, identity, substance, time, God, and reality.
**Prerequisite:** 6 credits in PHIL courses.
**Formerly:** PHIL464.

**PHIL366 Philosophy of Mind (3 Credits)**
An introduction to core issues in the philosophy of mind, focusing especially on the basic metaphysical question of dualism versus physicalism.
**Prerequisite:** 6 credits in PHIL courses.

**PHIL369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**PHIL370 Logical Theory I: Metatheory (3 Credits)**
This course is an introduction to logical "metatheory", that is, to logical reasoning about logic systems themselves. Topics include alternative alternative proof-theoretic presentations of logical systems as well as soundness and completeness theorems for propositional and first-order logic. Along the way, we will deepen our understanding of the elementary set-theoretic concepts underlying first order logic. Other topics may include basic results in the semantics of first order logic (such as the Craig interpolation theorem, the Beth definability theorem, or the Lowenhein-Skolem theorem).
**Prerequisite:** PHIL271 or CMSC250; or permission of the instructor.

**PHIL386 Experiential Learning (3-6 Credits)**
**Restriction:** Permission of ARHU-Philosophy department; and junior standing or higher.

**PHIL408 Topics in Contemporary Philosophy (3 Credits)**
An intensive examination of contemporary problems and issues. Source material will be selected from recent books and articles.
**Repeatable to:** 99 credits if content differs.

**PHIL409 Advanced Studies in Contemporary Philosophy (3 Credits)**
An in-depth study of a contemporary philosophical problem or issue. Topics will vary, but the course will encourage students to grapple with the primary literature in order to generate sustained critical analyses or proposed resolutions of issues under active consideration in contemporary philosophy.
**Prerequisite:** 6 credits in PHIL courses.
**Repeatable to:** 12 credits if content differs.

**PHIL412 The Philosophy of Plato (3 Credits)**
A critical study of selected dialogues.
**Prerequisite:** 6 credits in PHIL courses.

**PHIL414 The Philosophy of Aristotle (3 Credits)**
A critical study of selected portions of Aristotle's writings.
**Prerequisite:** 6 credits in PHIL courses.

**PHIL417 The Golden Age of Jewish Philosophy (3 Credits)**
Jewish philosophy from Maimonides in the 12th century to the expulsion of the Jews from Spain at the end of the 15th Century. Topics include the limitations of human knowledge, creation of the world, foreknowledge and free will, and the existence of God.
**Prerequisite:** 3 credits in PHIL courses; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies; or permission of ARHU-Philosophy department.
**Cross-listed with:** JWST452.
**Credit Only Granted for:** JWST452 or PHIL417.

**PHIL418 Topics in Epistemology/Metaphysics (3 Credits)**
An intensive examination of contemporary problems and issues in epistemology or metaphysics. Source material will be selected from recent books and articles.
**Prerequisite:** 2 courses in PHIL.
**Repeatable to:** 12 credits if content differs.

**PHIL428 Topics in the History of Philosophy (3 Credits)**
**Prerequisite:** PHIL310 and PHIL320; or permission of ARHU-Philosophy department.
**Repeatable to:** 99 credits if content differs.

**PHIL438 Topics in Value Theory (3 Credits)**
An intensive examination of contemporary problems and issues in ethics, aesthetics, political philosophy and related areas. Source material will be selected from recent books and articles.
**Prerequisite:** 2 courses in PHIL.
**Repeatable to:** 12 credits if content differs.

**PHIL440 Contemporary Ethical Theory (3 Credits)**
Contemporary work on fundamental problems in ethical theory, such as whether there are moral truths, whether and how our moral claims can be justified, what exactly makes an act right or wrong, the nature of moral language, and the role of reason and emotion in moral judgment.
**Prerequisite:** PHIL341; or permission of instructor.

**PHIL443 Moral Psychology (3 Credits)**
Philosophers often stress reasoning as the appropriate source for practical and moral action. Would a realistic view of human psychology undermine this assumption? This course will examine recent philosophical and empirical work on the relevance of emotion and/or intuition to rationality, moral worth, and moral judgment.
**Prerequisite:** 2 courses in PHIL.
**Recommended:** PHIL341 is strongly recommended for background on the historical authors that the readings make reference to.
**Credit Only Granted for:** PHIL408P or PHIL443.
**Formerly:** PHIL408P.

**PHIL445 Contemporary Political Philosophy (3 Credits)**
Major trends in contemporary political philosophy: liberal, libertarian, communitarian, socialist, feminist.
**Restriction:** Must have completed 3 credits in philosophy or political theory; or permission of ARHU-Philosophy department. And sophomore standing or higher.

**PHIL446 Law, Morality, and War (3 Credits)**
An exploration of fundamental moral and legal issues concerning war.

**PHIL453 Philosophy of Science II (3 Credits)**
A comprehensive survey of developments in the main problems of the philosophy of science from logical positivism to the present. The nature of theories, models, laws, and counterfactuals, testing, inductive logic, and confirmation theory, experimental methodology, measurement, explanation, concept formation, growth of scientific knowledge, and scientific realism.
**Prerequisite:** Students must have completed a minium of two philosophy courses.

**PHIL458 Topics in the Philosophy of Science (3 Credits)**
A detailed examination of a particular topic or problem in philosophy of science.
**Repeatable to:** 6 credits if content differs.

**PHIL469 Study Abroad Special Topics IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**PHIL470 Logical Theory II: Incompleteness and Undecidability (3 Credits)**
Introduces the formal theory of computation, and then presents the the central limitative results of modern first-order logic: Church's undecidability theorem and Godel's first and second incompleteness theorems. The primary focus of the course is a thorough technical study of these fundamental results, but we will also discuss some of the philosophical issues they raise. Further topics may include second-order logic.
**Prerequisite:** PHIL370; or permission of instructor.

**PHIL478 Topics in Philosophical Logic (3 Credits)**
Philosophical logics result from the application of formal techniques to problems of philosophical interest; these logics often have applications in other areas as well, such as AI, linguistics, psychology, economics, and law. This course will either concentrate on a particular family of philosophical logics (such as modal or temporal or defeasible logics) or else survey a number different logical systems.
**Prerequisite:** PHIL271; or permission of instructor.
**Recommended:** PHIL470.
**Repeatable to:** 9 credits if content differs.

**PHIL488 Topics in Philosophy of Cognitive Studies (3 Credits)**
Examination of a particular topic or problem in philosophy of cognitive studies.
**Prerequisite:** 3 credits in PHIL courses; or permission of ARHU-Philosophy department.
**Repeatable to:** 9 credits if content differs.

**PHIL489 Undergraduate Seminar in Philosophy (3-6 Credits)**
An intensive examination of a philosophical topic or topics.
**Restriction:** Permission of ARHU-Philosophy department.
**Repeatable to:** 6 credits if content differs.

**PHIL490 The Practice of Philosophy: How To Develop Your Own Work (3 Credits)**
Writing philosophical papers, presenting them to an audience, and responding critically and constructively to the papers and talks of others are skills central to the practice of philosophy. This course will help students to enhance those skills in a seminar-style format. Students should come to the course with a paper of their own (likely from another course) that they would like to develop.
**Prerequisite:** Three upper-level (300- or 400-level) courses in philosophy or permission of the instructor.
**Credit Only Granted for:** PHIL408R or PHIL490.
**Formerly:** PHIL408R.

**PHIL498 Topical Investigations (1-3 Credits)**

# PHIX - Philosophy Education Abroad

**PHIX301 Philosophy of Technology and Human Values (3 Credits)**
In our age, it is undeniable that human beings are technological creatures. Techne, that is, artful craftsmanship, has increasingly been enhancing our experiences, fulfilling our desires, and broadening our abilities, both on a large scale and in the daily lives of individuals. Do we control technology or does it control us? Is technology part of nature or an instrument to human ends? How can we respond critically to the use and development of technology? In this course, we examine such pressing questions from specifically Scandinavian, ethical, social, environmental, and philosophical perspectives.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

# PHPE - Philosophy, Politics, and Economics

**PHPE308 Special Topics in Philosophy, Politics, and Economics (3 Credits)**
A sustained investigation of a topic at the intersection of philosophy, politics and economics.
**Repeatable to:** 15 credits if content differs.

**PHPE313 From the Stoa to Silicon Valley: Ancient and Modern Approaches to Stoic Philosophy (3 Credits)**
Stoicism, ancient Rome's most popular philosophy, posited that virtue is the only human good and that individuals must detach themselves emotionally from the material world in order to live ethical lives. Principles of Stoic philosophy will be explored together with the wide array of artistic, political, and intellectual traditions that have drawn inspiration from it, from the Haitian revolutionary movement of the late 18th century, to the sexist "manosphere" of Reddit and Twitter, to modern cognitive-behavioral therapy.
**Cross-listed with:** CLAS313, PHIL313.
**Credit Only Granted for:** CLAS313, PHIL313, or PHPE313.

**PHPE350 Careers in Impact (3 Credits)**
The impact ecosystem is vast and complex and consists of public, private, and nonprofit sectors engaged in shaping the world around them. Each sector within this ecosystem has its own theory of change and plays a specific role in the broader impact space. As you seek to become a purposeful professional, it is essential to develop a deeper understanding of this ecosystem, the different levers of influence within it, and the intra-relationship between the sectors. This course introduces you to both the impact landscape and working professionals. Through lectures, guest visits, and hands-on projects you come away better equipped to find your place within the impact ecosystem.

**PHPE355 Practicum on Civic Engagement (3 Credits)**
As a PPE student, you are motivated to shape the world around you. Local governments share this same mission. In "Practicum on Civic Engagement", you will learn the tools of civic engagement and develop a project for a local government that furthers their goals. The class will consist of lectures that cover political, economic, and cultural aspects of civic engagement along with discussion days where you will work with your colleagues on a real-world project. This course is not an internship. Students will work to develop a project to serve their local government over the course of the semester and will have an opportunity to present their work to local government officials at the end of the semester.

**PHPE386 Experiential Learning Practicum in Philosophy, Politics, and Economics (3-6 Credits)**
For students who wish to gain experience working in research outside the classroom. Pending approval of the department, students may work at a professional site or remotely under professional supervision - your primary supervisor must be a professional in the field. Beyond working at a professional site or under professional supervision, students will have to complete further assignments to receive a passing grade in the course. Students may take PHPE386 for three-six credits, but only three credits will count towards the major requirements. PHPE386 is only open to those with junior standing or above.
**Restriction:** Junior standing or higher.

**PHPE400 Individual and Group Decision-Making (3 Credits)**
Foundational issues that arise within the theories of rational choice that underlie the treatments of decision-making found in economics, politics, and the other social sciences. The course is focused on individual decisions (rational choice theory), strategic decisions (game theory) and group decisions (social choice theory). In addition to presenting the formal models of decision making, we also discuss to what extent these mathematical theories explain social interactions. An important aspect of the course is to introduce students to the ways in which economic analysis has been applied to issues in social and political philosophy. Readings will be drawn from the literature in economics, psychology, statistics and political science, as well as philosophy.

**PHPE401 Social Philosophy and Political Economy (3 Credits)**
Examines capitalism and socialism as differing modes of economic production through several different theoretical lenses. We begin by examining capitalism and socialism as they developed historically, by looking primarily at the work of Adam Smith and Karl Marx. Then, we turn our attention to one of the most important debates in 20th century economics: to what extent rational economic calculation is possible in a socialist commonwealth. After this we turn our attention to how capitalist and socialist modes of production functioned in practice. We end by turning our attention to the ethics of capitalism and socialism: which mode of economic production is most just?

**PHPE402 Senior Capstone in Philosophy, Politics, and Economics (3 Credits)**
Senior capstone course for the Philosophy, Politics, and Economics major. The exact content of the course will be determined by the instructor who teaches it. The purpose of the course is to pursue sustained inquiry on a narrow philosophical topic, using the tools and methods from economics and political science to help analyze the topic. The course ends with a substantial research paper, where the student should demonstrate an ability to use the tools of philosophy, political science, and economics in his or her analysis.
**Restriction:** Must be in the Philosophy, Politics, and Economics major; and must have senior standing.

**PHPE408 Advanced Topics in Philosophy, Politics, and Economics (3 Credits)**
A sustained investigation of a topic at the intersection of philosophy, politics and economics.
**Repeatable to:** 15 credits if content differs.

# PHPX - Philosophy, Politics, and Economics Education Abroad

**PHPX300 Facts and Fictions of Climate Change (3 Credits)**
Explores theories of knowledge about climate change and how humans attempt to know, experience, and express the phenomenon of climate change. Examines on how "fact" is constructed by cultures in relation to climate change with a particular focus on air conditions and their representation in contemporary China.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**PHPX302 Human Rights in History: Origins, Foundations, Prospects (3 Credits)**
What are human rights and where do they come from? In this class students will examine the tangled origins of the concept of human rights, its relation to broader transformations of moral conscience, how it became institutionalized in law and modern world politics, and why its history and prospects have become so fiercely contested today. Students will focus on cases from European, imperial, American and global history that illuminate how human rights became part of the contemporary framework of politics, law, culture, and historiography.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**PHPX303 History of Political Thought (6 Credits)**
Explores key questions in the development of the concept of democracy through the study of texts by some of the most important thinkers and debates in the history of political thought, beginning in the ancient world and continuing through the twentieth century. Students will look at arguments and controversies as they unfolded in different historical circumstances, becoming familiar with the concepts, problems, and debates that have shaped political thought.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students. Please note that this course spans two semesters.

**PHPX304 Modernity: Theories of State, Economy and Society (6 Credits)**
Reflects on the concept of modernity through the examination of theories of society, economy and the state, and how modernity's promises of liberty, equality, and fraternity have been compromised from the outset. Students will study key theorists and moments in the history of modernity, and consider the dark side of modernity and critiques from both the "left" and the "right", the "culture of modernity", and the distinction between modernity and progress in history.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students. Please note that this course spans two semesters.

**PHPX305 Socialist Political Thought (3 Credits)**
Explores how socialism has historically provided the most important ideological and political alternative to capitalism and liberalism. This course examines core ideas in the history of socialist thought through a close reading of selected primary texts and the exploration of themes such as utopia, community, class, ownership and control, culture and identity, equality, and democracy.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

# PHSC - Public Health Science

**PHSC201 The Pursuit of Career Success in Public Health Science (1 Credit)**
Explore the dynamic connection between experiential learning and career readiness in the field of public health by engaging with insightful podcasts that bring real-world perspectives to the forefront. Through active learning, you will evaluate your skill set, reflect on your experiences, analyze industry trends, and uncover best practices essential for success in the public health workforce. This course is designed to help you bridge the gap between your current abilities and your career aspirations. By strategically planning your curricular and co-curricular engagement, you'll develop a roadmap tailored to your unique goals. This personalized action plan will empower you to navigate your career path moving fearlessly forward.
**Restriction:** Must be in the Public Health Science program.
**Credit Only Granted for:** PHSC388D or PHSC201.
**Formerly:** PHSC388D.

**PHSC300 Foundations of Public Health (3 Credits)**
An overview of the goals, functions, and methods of public health. After an introduction to the core concepts and tools used in public health research and practice, applications of these methodologies are considered in the context of current controversies/problems in public health. Students work together to develop strategies for prevention and control that take into consideration different points of view, outside research, and impacts on individuals and communities.
**Restriction:** Must be a major within the School of Public Health.
**Credit Only Granted for:** SPHL100 or PHSC300.

**PHSC321 Transfer Success for the Public Health Science Major (3 Credits)**
A public health-focused transition course for first year transfer students in UMD's PHSC program at Shady Grove. Students will engage with current public health topics through primary sources, literature reviews, course discussions, analytic writing, and critical thinking. Academic success and professional development in the public health field will be emphasized. Students will also engage with faculty, staff, centers, and resources both at the University of Maryland, College Park and the Universities at Shady Grove.
**Restriction:** Must be a first year transfer student in UMD's Public Health Science program at Shady Grove.

**PHSC388 Special Topics in Public Health Science (1-3 Credits)**
Will differ by specific course offering.
**Restriction:** Must be in Public Health Science program; and must have earned a minimum of 45 credits.
**Repeatable to:** 9 credits if content differs.

**PHSC389 Independent Research Study in Public Health Science (1-6 Credits)**
This independent research-based experience will provide the opportunity for students to work with individual research mentors in the area of Public Health Science. Students must identify a mentor prior to obtaining departmental permission.
**Restriction:** Must be in Public Health Science program; and must have earned a minimum of 45 credits; and permission of instructor.
**Repeatable to:** 6 credits if content differs.

**PHSC399 Public Health Science Internship (1-6 Credits)**
The Public Health Science internship will enable students to gain practical experience under conditions conducive to academic, research and professional development. The internship is a time-limited, supervised period of public health professional experience carried out in a related professional organization or research setting.
**Restriction:** Must be in Public Health Science program; and must have completed a minimum of 75 credits; and must have permission of instructor.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** PHSC491 or SPHL491.
**Formerly:** SPHL491.
**Additional Information:** Prospective students must meet with an advisor and complete internship verification, expectations and responsibilities prior to registration. This is generally completed the semester prior to beginning the internship.

**PHSC401 History of Public Health (3 Credits)**
Emphasis is on the history of public health in the Western world from antiquity to the present. Also examines the influence of public health developments as they relate to the Western world as well as throughout diverse cultures and societies across the globe. Analysis focuses on the interaction among Western and non-Western cultures with respect to health issues, including science, policies, prevention and treatment.
**Restriction:** Must be in Public Health Science program; and must have earned a minimum of 45 credits.
**Credit Only Granted for:** PHSC401 or SPHL401.
**Formerly:** SPHL401.

**PHSC402 Public Health Emergency Preparedness (3 Credits)**
Intensive introduction to public health emergency preparedness. Course will provide students with an overview of the role of public health in planning, prevention, preparedness, response, and recovery from disasters, both manmade and natural.
**Restriction:** Must be in Public Health Science program; and must have earned a minimum of 60 credits.
**Credit Only Granted for:** PHSC402 or SPHL402.
**Formerly:** SPHL402.

**PHSC405 Policy Advocacy and Public Health (3 Credits)**
Students will identify and analyze policy solutions to public health problems and determine advocacy strategies to encourage policy makers to implement the recommendations. Lectures, class discussions, group work and mock advocacy exercises will integrate the principles and practice of public health advocacy. Guest lecturers from a variety of settings will give students a broad range of perspectives and advocacy experiences.
**Prerequisite:** Minimum grade of C- in HLSA300.
**Restriction:** Must be in Public Health Science program; and must have earned a minimum of 60 credits.

**PHSC410 Public Health Program Planning and Evaluation (3 Credits)**
Students will become familiar with the dynamics of public health program planning, and the basic process of identifying unmet needs. They will be able to identify different types of program evaluation, including needs assessment, formative research, process evaluation, impact assessment, and cost analysis.
**Restriction:** Must be in Public Health Science program; and junior standing or higher.
**Credit Only Granted for:** PHSC410 or SPHL410.
**Formerly:** SPHL410.

**PHSC412 Food, Policy, and Public Health (3 Credits)**
Broad overview of the impact of food and food policy on public health. Course covers topics such as access to food, food systems, influence of food policies on the individual, the cost of food, influences on food selection, food safety risks and responses, nutrition-related health challenges, and a comparison of US food/nutrition issues with those of other nations.
**Prerequisite:** Must have completed HLSA300 with a C- or higher.
**Recommended:** NFSC100.
**Restriction:** Must be in Public Health Science program; and junior standing or higher.
**Credit Only Granted for:** PHSC412 or SPHL412.
**Formerly:** SPHL412.

**PHSC415 Essentials of Public Health Biology: The Cell, The Individual, and Disease (3 Credits)**
Presents the basic scientific and biomedical concepts of modern public health problems and explores in depth mechanisms and models of the major categories of disease. The biologic principles presented are foundations to public health disease prevention, control, or management programs.
**Prerequisite:** Minimum grade of C- in BSCI202.
**Recommended:** BSCI223.
**Restriction:** Must be in Public Health Science program; and junior standing or higher.
**Credit Only Granted for:** PHSC415, SPHL415 or SPHL498J.
**Formerly:** SPHL415 and SPHL498J.

**PHSC420 Vaccines and Immunology (3 Credits)**
An exploration of immunology and vaccines through a public health lens. We will examine the cells, systems, and molecules that comprise the human immune system and defend your body against disease. In addition, we will discuss the strategies used during vaccine development including the history and future of vaccination and how increased understanding of the immune system has allowed scientists to improve and refine the process. Finally we will examine the current social and political situation surrounding vaccination and the roles and responsibility of public health practitioners.
**Prerequisite:** Minimum grade of C- in BSCI202.
**Recommended:** CHEM231.
**Restriction:** Must have earned a minimum of 60 credits. And must be in Public Health Science program; or permission of instructor.

**PHSC425 Genetics, Genomics, and Public Health (3 Credits)**
Recent advances in genomic science and biomedical technologies have increased our understanding of the genetic basis of disease and the interplay between genetics and environmental and behavioral factors. This course will provide a solid background in basic genetics and genomic science and highlight the role of public health professionals in translating breakthroughs in this rapidly transforming field into the clinical setting, program planning, and policy. Topics covered will include the molecular basis for genetic variation, fetal and newborn screening, genetic risk factors for cancer, pharmacogenetics, the role of pathogen genomics in outbreak investigation, and applications of genetic engineering in solving public health issues.
**Prerequisite:** Must have completed BSCI170 and 171 with a C- or higher.
**Recommended:** BSCI222 and BSCI223.
**Restriction:** Must have earned a minimum of 60 credits; and must be in Public Health Science program.
**Credit Only Granted for:** SPHL498X OR PHSC425.
**Formerly:** SPHL498X.

**PHSC426 Climate Change and Health (3 Credits)**
Climate changes pose significant risks to population health by affecting air quality, the availability of safe drinking water, infectious disease transmission, food security, and access to housing, land, and livelihoods. Students examine the relationship between climate change and human health, focusing on how climate change vulnerability varies between populations by geographic, demographic, and socioeconomic characteristics.
**Prerequisite:** Minimum grade of C- in MIEH300.
**Restriction:** Must be in Public Health Science program.

**PHSC430 Public Health in the City: Perspectives on Health in the Urban Environment (3 Credits)**
Exposure to issues related to city habitation and the health of the public, including how the urban environment impacts the lives and health of city dwellers, including discussion of the social determinants of health. Students are encouraged to think about urban health and policy, and to question the current state of urban public health. Issues of race, class, and equality will be discussed throughout the course as they relate to each of these topics.
**Prerequisite:** Minimum grade of C- in BSCI202 and MIEH300.
**Restriction:** Must be in Public Health Science program; and junior standing or higher.
**Credit Only Granted for:** PHSC430 or SPHL498G.
**Formerly:** SPHL498G.

**PHSC440 Public Health Nutrition (3 Credits)**
Engages students in conceptual thinking about the relationship between public health and nutritional health. Students will analyze and interpret "A Framework for Public Health Nutrition." Students will identify determinants of nutritional health, assess nutritional health in individuals and populations, develop strategies to mitigate these issues, and analyze and evaluate public health nutrition policies.
**Prerequisite:** A minimum of C- in BSCI170, BSCI171, CHEM131, CHEM132 and EPIB301.
**Restriction:** Must be in Public Health Science program.
**Credit Only Granted for:** PHSC440 or NFSC498L.

**PHSC450 Addressing Social and Structural Inequities Through Public Health (3 Credits)**
A focus on addressing social and structural inequities within race, gender, disability, and class through various perspectives in the field of public health. Students explore the causes, challenges, consequences, and extent these injustices have on health disparities from local, national, and global perspectives. Students view these inequities through the lens of the affected populations, and work interactively and collaboratively to interpret, design, and evaluate public health interventions and approaches to address key health disparities within specific communities. The aim of this course is to help students define appropriate research and address structural inequities with innovative approaches through the professional practice of public health.
**Prerequisite:** Minimum grade of C- in MIEH300; and 1 course with a minimum grade of C- from either SPHL100 or PHSC300.

**PHSC497 Public Health Science Capstone (3 Credits)**
The capstone course is the culminating experience for Public Health Science students and must be taken only in the final semester of study. The Public Health Science capstone course is designed to challenge students to integrate the five core areas of public health in investigating, researching and addressing public health issues. Throughout the semester, students will be required to evaluate, analyze and synthesize scholarly works as they research and propose solutions to a variety of public health issues. By the conclusion of this research based course, students will understand how the various public health perspectives can combine in addressing and informing public health practices.
**Prerequisite:** Must have completed the professional writing requirement with a C- or higher; and minimum grade of C- in PHSC450.
**Restriction:** Must have earned a minimum of 100 credits; and must be in Public Health Science program; and must be in the final semester of undergraduate study.
**Credit Only Granted for:** SPHL498F or PHSC497.
**Formerly:** SPHL498F.

# PHYS - Physics

**PHYS102 Physics of Music (3 Credits)**
A study of the physical basis of sound, acoustical properties of sound, the human ear and voice, reproduction of sound, electronic music, acoustical properties of auditoriums, and other selected topics.
**Prerequisite:** Must have math eligibility of MATH107 or higher.
**Credit Only Granted for:** PHYS102 and PHYS499C.
**Additional Information:** CORE Distributive Studies Physical Sciences Laboratory Course only when taken concurrently with PHYS103.

**PHYS103 Physics of Music Laboratory (1 Credit)**
Optional laboratory to accompany PHYS 102. Laboratory experiments, including the velocity of sound, sound quality and wave shape, traveling and standing waves, fourier synthesis and analysis, musical synthesizer, psychoacoustics, and audio equipment.

**PHYS105 A Global Challenge: Energy and Climate Change (3 Credits)**
This marquee course will consider the global energy crisis from a scientific perspective. Topics include basic laws of energy and thermodynamics, their effects on energy production and distribution, greenhouse gas, global warming and policy options for decision makers. This course is aimed at the non-science major.

**PHYS106 Light, Perception, Photography, and Visual Phenomena (3 Credits)**
Intended for the general student, this course will cover topics in optics which require minimal use of mathematics. Principles of optics, lenses, cameras, lasers and holography, physics of the eye, color vision and various visual phenomena such as rainbows.

**PHYS107 Light, Perception, Photography and Visual Phenomena Laboratory (1 Credit)**
Optional laboratory to accompany PHYS106. Laboratory experiments include geometrical optics (lenses, cameras, eye), optical instruments (telescope, binoculars), photography, perception, color phenomena, and wave phenomena.

**PHYS111 Physics in the Modern World (3 Credits)**
A survey course in general physics emphasizing the role that physics plays in science, technology, and society today. The course is concept oriented and minimal use of mathematics is made. Intended for the general student; does not satisfy the requirements of the professional schools.

**PHYS115 Inquiry into Physics (4 Credits)**
Intended for students majoring in neither the physical nor the biological sciences. Use of laboratory-based and inquiry-based methods to study some of the basic ideas of physical sciences.
**Recommended:** High School Physics.
**Restriction:** Must not have completed PHYS117; and must be in one of the following programs (Elementary Education; Early Childhood Education; Middle School Education).
**Credit Only Granted for:** PHYS115 or PHYS117.

**PHYS121 Fundamentals of Physics I (4 Credits)**
The first part of a two-semester course in general physics treating the fields of mechanics, heat, sound, electricity, magnetism, optics, and modern physics. Together with PHYS122, this generally satisfies the minimum requirement of medical and dental schools.
**Prerequisite:** MATH113 or MATH115.
**Credit Only Granted for:** PHYS121, PHYS131, or PHYS331.

**PHYS122 Fundamentals of Physics II (4 Credits)**
A continuation of PHYS121, which together with it, generally satisfies the minimum requirement of medical and dental schools.
**Prerequisite:** PHYS121; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** PHYS122, PHYS132, or PHYS332.

**PHYS131 Fundamentals of Physics for Life Sciences I (4 Credits)**
The first part of a two-semester course in general physics specifically oriented towards applications relevant for students in biology and pre-medical programs. The course covers basic mechanics including forces and energy, properties of matter, and thermodynamics done in authentic biological contexts.
**Prerequisite:** CHEM131; and (MATH136 or MATH140); and (BSCI160 and BSCI161; or BSCI106); and (BSCI170 and BSCI171; or BSCI105).
**Credit Only Granted for:** PHYS121, PHYS131, or PHYS331.

**PHYS132 Fundamentals of Physics for Life Sciences II (4 Credits)**
The second part of a two-semester course in general physics specifically oriented towards applications relevant for students in biology and pre-medical programs. The course covers basic statistical physics, electricity and magnetism, and optics done in authentic biological contexts.
**Prerequisite:** PHYS131; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** PHYS122, PHYS132, or PHYS332.

**PHYS141 Principles of Physics (4 Credits)**
The first of a two-semester series in general physics. The first semester covers the fields of mechanics, thermodynamics, and special relativity. This survey course will use calculus and is recommended for chemistry and zoology majors. It also satisfies the requirements of medical and dental schools.
**Corequisite:** MATH141 or MATH121; or MATH221.
**Credit Only Granted for:** PHYS141, PHYS161, or PHYS171.

**PHYS142 Principles of Physics (4 Credits)**
A continuation of PHYS141 covering waves, electricity and magnetism, optics and modern physics.
**Prerequisite:** PHYS141; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** PHYS142, (PHYS260 and PHYS261), or PHYS272.

**PHYS161 General Physics: Mechanics and Particle Dynamics (3 Credits)**
First semester of a three-semester calculus-based general physics course. Laws of motion, force, and energy; principles of mechanics, collisions, linear momentum, rotation, and gravitation.
**Prerequisite:** Must have completed or be concurrently enrolled in MATH141.
**Credit Only Granted for:** PHYS141, PHYS161, or PHYS171.
**Additional Information:** General Education Natural Sciences Lab (DSNL) Course only when taken concurrently with PHYS275.

**PHYS165 Introduction to Programming in the Physical Sciences (3 Credits)**
Introduction to programming using examples in the physical sciences. Provides instruction in the techniques of upper-level languages such as Fortran, C, and Pascal, as well as an introduction to the object oriented programming techniques used in Python, C++ and Java. Includes strong component of visualization and graphing.
**Prerequisite:** PHYS171, PHYS141, or PHYS161; or must have scored 3 or higher on AP PHYS exam.

**PHYS170 Professional Physics Seminar (1 Credit)**
Provides a look at some of the major developments of current interest in physics research and discusses the activities physicists undertake in research, education, industry, government, and other areas of the economy.
**Corequisite:** MATH140.
**Restriction:** Must be in Physics program; or must be in Physics-Education program; or permission of instructor.

**PHYS171 Introductory Physics: Mechanics (3 Credits)**
First semester of a three semester sequence for physics majors and those desiring a rigorous preparation in the physical sciences: kinematics, Newton's laws, energy and work, linear and angular momenta.
**Prerequisite:** (MATH140; and a high school physics course); or permission of CMNS-Physics department.
**Credit Only Granted for:** PHYS141, PHYS161, or PHYS171.
**Additional Information:** General Education Natural Sciences Lab (DSNL) Course only when taken concurrently with PHYS275.

**PHYS172 Succeeding in Physics: Applications, Resources and Concepts (1 Credit)**
Supplemental instruction and support for students taking PHYS171, especially for students with limited high school physics preparation, or who will benefit from extra review and practice of relevant mathematics and physics concepts and skills.
**Corequisite:** PHYS171.
**Restriction:** Permission of CMNS-Physics department.

**PHYS174 Physics Laboratory Introduction (1 Credit)**
Introduces students to the techniques of data gathering and analysis. This course will lay a foundation for higher-level labs in physics and the physical sciences. Students will learn to use laboratory equipment such as calipers, meters, oscilloscopes, and computer interfaces. Techniques of measurement and error analysis will be presented. Students will be taught to use the computer for data analysis with an emphasis on using spreadsheets.
**Corequisite:** MATH140.
**Recommended:** High school physics.

**PHYS235 The Manhattan Project (3 Credits)**
Introduction to some critical ideas of nuclear physics and a review of some key historical developments starting at the end of the 19th century. Chronological development of nuclear physics from the discovery of radioactivity by Becquerel in 1896 through to the discovery of fission in Germany in 1938 followed by an examination of the programs to develop nuclear weapons in the United States, Britain and Germany. Extensive study of political, ethical, scientific, military, social, and economic issues surrounding the Manhattan Project.
**Recommended:** Students should be comfortable standard high school algebra II.
**Credit Only Granted for:** PHYS199M or PHYS235.
**Formerly:** PHYS199M.

**PHYS260 General Physics: Electricity, Magnetism and Thermodynamics (3 Credits)**
Second semester of a three-semester calculus-based general physics course. Electrostatics, magnetism, induction, DC and AC circuits; Maxwell's Equations, heat, and thermodynamics.
**Prerequisite:** PHYS161 and MATH141.
**Corequisite:** PHYS261.
**Credit Only Granted for:** PHYS142, PHYS260, or PHYS272.

**PHYS261 General Physics: Mechanics, Vibrations, Waves, Heat (Laboratory) (1 Credit)**
Lab includes experiments on mechanics, vibrations, waves, and heat. Engineering majors are expected to take PHYS260 and PHYS261 in the same semester.
**Prerequisite:** PHYS161.

**PHYS265 Introduction to Scientific Programming (3 Credits)**
Introduction to scientific programming with python. Basic data types, sequences, input/output, and program control flow structures. Evaluation and plotting of mathematical functions and data. Statistical interpretation of data, and fitting of data to models. Introduction to numerical methods including integration, solutions of ordinary differential equations, and linear algebra. Extensive use of the numpy, matplotlib, and scipy packages.
**Prerequisite:** PHYS171, PHYS141, or PHYS161; or must have scored 3 or higher on AP PHYS C Mechanics exam.
**Credit Only Granted for:** PHYS165 or PHYS265.
**Formerly:** PHYS165.

**PHYS270 General Physics: Waves, Optics, Relativity and Modern Physics (3 Credits)**
Third semester of a three-semester calculus-based general physics course. Waves, sound, electromagnetic waves, optics, special theory of relativity, and modern physics.
**Prerequisite:** PHYS261, MATH241, and PHYS260.
**Corequisite:** PHYS271.

**PHYS271 General Physics: Electrodynamics, Light, Relativity and Modern Physics (Laboratory) (1 Credit)**
Lab includes experiments on ac circuits, magnetism, light and modern physics. PHYS270 and PHYS271 (lab) must be taken in the same semester.
**Prerequisite:** PHYS261.
**Corequisite:** PHYS270.

**PHYS272 Introductory Physics: Fields (3 Credits)**
Second semester of a calculus based general physics course. Universal gravitation, electric and magnetic fields and potentials, simple circuits, Maxwell's equations in integral form. Continues the application of mathematics to conceptual models, now with more abstract components.
**Prerequisite:** PHYS161 or PHYS171; and MATH141; and must have completed or be concurrently enrolled in MATH241.
**Credit Only Granted for:** PHYS142, PHYS260, or PHYS272.

**PHYS273 Introductory Physics: Oscillations and Waves (3 Credits)**
Mechanical and electrical oscillators, including damped and driven systems; coupled oscillators and normal modes; Fourier series and Fourier transforms; the classical wave equation, traveling and standing waves; reflection and transmission; Maxwell's equations in differential form; physical optics. Extensive use of complex variables.
**Prerequisite:** MATH241 and PHYS272; and must have completed or be concurrently enrolled in PHYS274, MATH243 or equivalent.

**PHYS274 Mathematical Methods for Physics I (3 Credits)**
A first course in mathematical methods for physics. Topics include linear algebra, curvilinear coordinates and vector analysis.
**Prerequisite:** MATH241 and PHYS272.

**PHYS275 Experimental Physics I: Mechanics and Waves (2 Credits)**
A first course for physics majors and interested engineering students introducing the methods of experimental science. Students learn to identify various statistical data distributions, carry out rigorous uncertainty analysis, and test whether a given theoretical model adequately describes the observed phenomena. These concepts are applied to sophisticated physical systems that exhibit complex behavior and can yield remarkably precise and accurate results. Experiments are chosen from the areas of mechanics and waves.
**Prerequisite:** Must have completed or be concurrently enrolled in PHYS171 or PHYS161.
**Additional Information:** General Education Natural Sciences Lab (DSNL) Course only when taken concurrently with PHYS171 or PHYS161.

**PHYS276 Experimental Physics II: Electricity and Magnetism (2 Credits)**
Second course in the three semester introductory sequence. Methods and rationale of experimental physics. Experiments chosen from the fields of electricity and magnetism including electrostatics, magnetostatics, magnetic induction, AC circuits.
**Prerequisite:** PHYS272 and PHYS275.

**PHYS298 Special Topics in Physics (1-3 Credits)**
Special topics in physics.
**Repeatable to:** 6 credits if content differs.

**PHYS299 Special Problems in Physics (1-6 Credits)**
Research or special study to complement courses taken elsewhere which are not fully equivalent to those in departmental requirements. Credit according to work done.
**Prerequisite:** Permission of CMNS-Physics department.

**PHYS313 Electricity and Magnetism I (4 Credits)**
A first course in electricity and magnetism at an advanced level. Electrostatics; solutions to the Laplace and Poisson equations in cartesian and spherical coordinates; electric fields in matter; and magnetostatics. Study of boundary value problems and extensive use of vector calculus.
**Prerequisite:** MATH241, PHYS273, and one of the following: PHYS274, MATH240, MATH243, MATH246, or equivalent courses.

**PHYS318 Topics in Contemporary Physics (3 Credits)**
A survey of topics of current research and public interest. Intended for the non-physics or non-science major. Topics covered will include lasers, quantum liquids, cosmology, elementary particles and geophysics.
**Prerequisite:** PHYS122 or PHYS111; or permission of CMNS-Physics department.

**PHYS331 Physics for Life Sciences I (4 Credits)**
The first part of a two-semester course in general physics specifically oriented towards applications relevant for students in biology and pre-medical programs. The course covers basic mechanics including forces and energy, properties of matter, and thermodynamics done in authentic biological contexts.
**Prerequisite:** CHEM131; and (MATH131 or MATH136); and (BSCI160 and BSCI161; or BSCI106); and (BSCI170 and BSCI171; or BSCI105). Or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** PHYS121, PHYS131 or PHYS 331.

**PHYS332 Physics for Life Sciences II (4 Credits)**
The second part of a two-semester course in general physics specifically oriented towards applications relevant for students in biology and pre-medical programs. The course covers basic statistical physics, electricity and magnetism, and optics done in authentic biological contexts.
**Prerequisite:** PHYS331; or PHYS131; or students who have taken courses with comparable content may contact the department.
**Credit Only Granted for:** PHYS122, PHYS132, or PHYS332.

**PHYS371 Modern Physics (3 Credits)**
Introduces students to special relativity, thermodynamics and quantum mechanics at an intermediate level.
**Prerequisite:** PHYS273 and PHYS274.
**Corequisite:** PHYS373.
**Credit Only Granted for:** PHYS371 or PHYS420.
**Additional Information:** This course is intended primarily for physics and astronomy majors.

**PHYS373 Mathematical Methods for Physics II (3 Credits)**
A second course in mathematical methods for physics. Topics include introduction to ordinary differential equations, partial differential equations, and complex analysis.
**Prerequisite:** PHYS273 and PHYS274.

**PHYS375 Experimental Physics III: Electromagnetic Waves, Optics and Modern Physics (3 Credits)**
Third course in the three-semester introductory sequence. Methods and rationale of experimental physics. Experiments chosen from the areas of electromagnetic waves, optics and modern physics.
**Prerequisite:** PHYS276 and PHYS273.

**PHYS386 Experiential Learning (3-6 Credits)**

**PHYS389 Undergraduate Thesis Research (1-6 Credits)**
Independent directed research and study on a topic selected by the student in consultation with his or her advisor. Final written thesis and oral defense will be expected.
**Prerequisite:** Permission of CMNS-Physics department.
**Restriction:** Must be in a major within CMNS-Physics department.
**Repeatable to:** 6 credits.

**PHYS398 Independent Studies Seminar (1-16 Credits)**
Credit according to work done. Enrollment is limited to students admitted to the independent studies program in physics.

**PHYS399 Special Problems in Physics (1-3 Credits)**
Selected advanced experiments. (Will be given with sufficient demand.)
**Prerequisite:** PHYS405; and permission of CMNS-Physics department.

**PHYS401 Quantum Physics I (4 Credits)**
Introduces some quantum phenomena leading to wave-particle duality. Schroedinger theory for bound states and scattering in one dimension. One-particle Schroedinger equation and the hydrogen atom.
**Prerequisite:** PHYS371 and PHYS373.
**Formerly:** PHYS421.

**PHYS402 Quantum Physics II (4 Credits)**
Quantum states as vectors; spin and spectroscopy, multiparticle systems, the periodic table, perturbation theory, band structure, etc.
**Prerequisite:** PHYS401.

**PHYS404 Introduction to Statistical Thermodynamics (3 Credits)**
Introduction to basic concepts in thermodynamics and statistical mechanics.
**Prerequisite:** PHYS371 or PHYS420.

**PHYS405 Advanced Experiments (3 Credits)**
Advanced laboratory techniques. Selected experiments from many fields of modern physics. Emphasis on self-study of the phenomena, data analysis, and presentation in report form.
**Prerequisite:** PHYS375.
**Restriction:** Must be in a major within CMNS-Physics department.

**PHYS407 Undergraduate Experimental Research (3 Credits)**
Students develop and complete an independent, experimental research project with a professor in the Physics Department. The project should be a continuation of work done in PHYS499A. To obtain permission, students must submit a proposal describing the experimental work to be completed and this proposal must be approved by their faculty mentor, the associate chair for undergraduate education and the chair of the laboratory committee. Students must maintain a lab notebook, give an oral presentation and complete a written report on their research that includes data and error analysis.
**Prerequisite:** PHYS499 and PHYS375; and permission of CMNS-Physics department.
**Restriction:** Must be in a major within CMNS-Physics department; and senior standing.

**PHYS410 Classical Mechanics (4 Credits)**
Theoretical foundations of mechanics with extensive application of the methods. Various mathematical tools of theoretical physics.
**Prerequisite:** PHYS373.

**PHYS411 Intermediate Electricity and Magnetism (4 Credits)**
Foundations of electromagnetic theory, with extensive applications of the methods. Thorough treatment of wave properties of solutions of Maxwell's equations.
**Prerequisite:** PHYS373.

**PHYS412 Intermediate Electricity and Magnetism I (4 Credits)**
The first semester of a two semester course with emphasis on electrostatics and magnetostatics, boundary value problems, fields in matter, electrodynamics, and Maxwell's equations.
**Prerequisite:** PHYS373.

**PHYS413 Electricity and Magnetism II (3 Credits)**
The second semester of a two semester course with emphasis on electromagnetic waves, potentials and gauge invariance, and relativistic electrodynamics
**Prerequisite:** PHYS313 or PHYS412.
**Credit Only Granted for:** PHYS411 or PHYS413.

**PHYS420 Principles of Modern Physics (3 Credits)**
A survey of atomic and nuclear phenomena and the main trends in modern physics. Appropriate for students in engineering and other physical sciences.
**Prerequisite:** MATH246. And PHYS271 and PHYS270; or PHYS273.
**Credit Only Granted for:** PHYS371 or PHYS420.

**PHYS428 Physics Capstone Research (2-4 Credits)**
Individual, focused research under the guidance of a faculty member. Discussion, presentations and, if appropriate, research group projects involved. Student must submit final research paper for completion of course. Paper may also serve as thesis required for High Honors in Physics. Not intended as a general "reading course" (see PHYS499).
**Restriction:** Must be in a major within CMNS-Physics department; and senior standing or higher; and permission of instructor.
**Repeatable to:** 4 credits.

**PHYS429 Atomic and Nuclear Physics Laboratory (3 Credits)**
Classical experiments in atomic physics and more sophisticated experiments in current techniques in nuclear physics.
**Prerequisite:** PHYS405.

**PHYS431 Introduction to Solid State Physics (3 Credits)**
Classes of materials; introduction to basic ideal and real materials' behavior including mechanical, electrical, thermal, magnetic and optical responses of materials; importance of microstructure in behavior. One application of each property will be discussed in detail.
**Prerequisite:** PHYS271, PHYS270, and MATH241.
**Cross-listed with:** ENMA460.
**Restriction:** Junior standing or higher; and must be in the Engineering: Materials Science program or Physics program.
**Credit Only Granted for:** ENMA460 or PHYS431.
**Additional Information:** Materials Engineering students take ENMA460 and Physics students take PHYS431.

**PHYS441 Topics in Nuclear and Particle Physics (3 Credits)**
A survey of concepts in particle and nuclear physics, with a topical emphasis on the impact of the Weak Interaction and the discovery of Parity Violation.
**Prerequisite:** PHYS401 or PHYS402.
**Corequisite:** PHYS402.

**PHYS444 Computing Beyond the Standard Model of Particle Physics (3 Credits)**
An exploration of the computing languages and techniques used to analyze large data sets in Large Hadron Collider physics with some discussion of applications in unrelated fields.
**Prerequisite:** PHYS371 and PHYS373; or permission of instructor.

**PHYS456 Making Physics Experiments (3 Credits)**
Laboratory course emphasizing practical skills used for making Physics experiments within the broader context of the maker movement and the maker culture. Design, fabrication, hands-on skills, repair, and safety. Practical skills not otherwise covered in traditional coursework (e.g.: carpentry, electronics disassembly/assembly, soldering, etc.).
**Prerequisite:** PHYS276; or permission of instructor.
**Restriction:** Permission of Physics Department.
**Credit Only Granted for:** PHYS499X or PHYS456.
**Formerly:** PHYS499X.

**PHYS457 Introduction to Quantum Computing (3 Credits)**
An introduction to the concept of a quantum computer, including algorithms that outperform classical computation and methods for performing quantum computation reliably in the presence of noise. As this is a multidisciplinary subject, the course will cover basic concepts in theoretical computer science and physics in addition to introducing core quantum computing topics.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, PHYS274); and 1 course with a minimum grade of C- from (CMSC351, PHYS373).
**Restriction:** Permission of CMNS-Physics department; or permission of CMNS-Computer Science department. Cross-listed with CMSC4 57.
**Credit Only Granted for:** PHYS457 or CMSC457. Additional infor mation: No previous background in quantum mechanics is required.

**PHYS467 Introduction to Quantum Technology (3 Credits)**
Investigates the physical systems used to implement quantum computers. Covers basics of atomic clocks, laser interferometers, quantum key distribution, quantum networks, and three types of qubits (ion-based, superconductor-based, and semiconductor-based).
**Prerequisite:** MATH141 and MATH240; or equivalent.
**Recommended:** Students need not have taken a course on quantum mechanics; however, students should be comfortable with:
probability theory, Markov chains, complex numbers, quantum states, measurements, unitary operations, matrix algebra, Pauli matrices, the tensor product, waves, the harmonic oscillator, the quantum harmonic oscillator, and the Schrodinger equation.

**PHYS474 Computational Physics (3 Credits)**
Introduction to computational physics. Overview of some of the most widely used methods of computational physics and computational methods, including data analysis and statistical methods, visualization, numerical solutions of ordinary and partial differential equations (classical equations of motion, Poisson's equation, time independent and time dependent Schrodinger equations) and Monte Carlo simulations. In addition to giving the students a basic working knowledge of these particular techniques, the goal is to make them proficient in scientific computing and programming in general, so that they will be prepared to tackle other computational and data analysis problems that they may encounter in the future. This course will use the programming language Python.
**Prerequisite:** PHYS373; and (PHYS165, CMSC106, or CMSC131).
**Recommended:** PHYS401 (strongly recommended).
**Additional Information:** Students will need a laptop for this course to run specific software; however, arrangements will be made for those who need them. Students will need to load the Python 3 language on your computer, which will be done in the first week of class. The class will use the "Anaconda" environment/distribution, which is available for Mac/Windows/Linux. Contact the department for more information.

**PHYS476 Introduction to Applied Machine Learning (3 Credits)**
Introduces machine learning techniques that are becoming pertinent in the technology industry. Focus on hands-on work using popular high-level libraries. Students are expected to have a background in functional programming, linear algebra, calculus, and mathematical modeling.
**Prerequisite:** PHYS165, PHYS274, and PHYS276; or interested students with backgrounds in functional programming, linear algebra and statistics, should contact the instructors to request permission.

**PHYS485 Electronic Circuits (3 Credits)**
Theory and application to experimental physics of modern semiconductor analog and digital circuits. Emphasis on understanding passive and active elements in practical circuits. Topics span the range from simple transistor circuits to microcomputers.
**Prerequisite:** PHYS272 and PHYS276.
**Restriction:** Must be in a major within CMNS-Physics department.

**PHYS499 Special Problems in Physics (1-16 Credits)**
Research or special study. Credit according to work done.

# PLCY - Public Policy

**PLCY100 Foundations of Public Policy (3 Credits)**
A survey course, focusing on public policy institutions and analytical issues as well as on overview of key public policy problems. Students will be introduced to public policy as a discipline, with a brief overview of the actors and institutions involved in the process, and familiarize themselves with the kinds of problems typically requiring public action. The course will examine these problems from a multijurisdictional and multisectoral perspective. Specific policy areas examined include education policy, health policy, economic and budgetary policy, criminal justice policy, environmental policy, and national and homeland security policy. The course should permit students to have broad foundational exposure to the field that will give them a solid base for more advanced courses.

**PLCY101 Great Thinkers on Public Policy (3 Credits)**
Great ideas in public policy, such as equality, efficiency, sovereignty, liberty, bureaucracy, democracy and security are explored through the lens of great thinkers. An introduction to the intellectual foundations of public policy, from ancient theories on collective public action through the more contemporary development of public policy as a discipline. This may start as early as the ancient Greek philosophers and their views on public action through contemporary classics of public policy. At the conclusion of the course, students will have read classic works in the field and will master the key themes that have dominated the intellectual debates about public policy over its history. Emphasis will be on the interdisciplinary foundations of public policy, through examining core disciplinary contributions from economics, political science, management, philosophy, and other relevant disciplines.

**PLCY201 Public Leaders and Active Citizens (3 Credits)**
Aims to inspire, teach and engage students in the theory and practice of public leadership from the local to the national to the global level. Students will learn and apply diverse approaches to leadership in a multicultural society while developing an understanding of key frameworks and practices necessary to foster collective action across private, public, and nonprofit sectors. This course will allow students to become informed citizens able to reason critically and persuasively about public matters Students will also explore and assess their own personal values, beliefs, and purpose as they develop their leadership potential.
**Credit Only Granted for:** PLCY201 or PUAF201.
**Formerly:** PUAF201.

**PLCY203 Liberty and Justice for All: Ethics and Moral Issues in Public Policy (3 Credits)**
Students will broaden their understanding of the moral dimensions of public policy as well as their own individual moral perspective. Discussions will include the ideal of a just society, and the place of liberty and equality in it, while focusing on contemporary theories of ethics and justice. It will develop students' appreciation of the ethical challenges unique to the public service sector while building their skills in ethical analysis and decision-making. We will explore the increasing ethical challenges in a world in which technology, global risks, and societal developments are accelerating faster than our understanding can keep pace. A framework for ethical decision-making underpins the course.

**PLCY213 Foundations of Nonprofit Leadership and Social Innovation (3 Credits)**
Through discussions of contemporary trends, challenges and issues, this course provides an introduction to the nonprofit and NGO sectors, social innovation, and the leadership and management skills required to achieve social impact. The course will explore the history, theories, and roles of philanthropy, the nonprofit sector, and social innovation in societies and cultures. Students will be able to demonstrate an understanding of the process and principles of social entrepreneurship and social innovation. Additionally, the course will introduce students to topics in leadership, social innovation, resource development, community mobilization through networks, the role of policy-making in creating change, project management, and overall strategies for achieving social impact. The course will include mini hands-on learning experiences that allow them to apply key learning outcomes.

**PLCY214 Leading and Investing in Social Change: Re-defining and Experimenting with Philanthropy (3 Credits)**
Defines philanthropy as an exploration of how one develops a vision of the public good and then deploys resources (including donations, volunteers, and voluntary associations) to achieve an impact.
**Credit Only Granted for:** PLCY214, PUAF214 or PUAF359I.
**Formerly:** PUAF359I, PUAF214.

**PLCY215 Innovation and Social Change: Creating Change for Good (3 Credits)**
A team-based, highly interactive and dynamic course that provides an opportunity for students to generate solutions to a wide range of problems facing many communities today. Students in the iGIVE Program will deepen their understanding of entrepreneurship and innovation practices by creating and implementing projects or ventures that address an issue of their choosing while learning topics such as communications, project management, teamwork, leadership, fundraising, project sustainability and next steps in social change.
**Credit Only Granted for:** PLCY215 or PUAF215.
**Formerly:** PUAF215.

**PLCY240 Ethical, Policy and Social Implications of Science and Technology (3 Credits)**
Asks students to think about how society should manage complexity, transformation, and uncertainty with an eye on developing a broader sense of ethics and social responsibility. Introduces analytical frameworks, concepts, and data collection techniques that interdisciplinary scholars use to map relationships among science, technology and society and generate important questions about the future of society.
**Cross-listed with:** ENES240.
**Restriction:** Must be in the Science, Technology, Ethics and Policy minor.
**Credit Only Granted for:** ENES240 or PLCY240.

**PLCY288 Introduction to Public Policy Topics (1-3 Credits)**
Introductory-level special topics focusing on a Public Policy problem or issue area.
**Repeatable to:** 6 credits if content differs.

**PLCY300 Governance: Collective Action in the Public Interest (3 Credits)**
Examination of societal responses to public problems, including actions by government, non-profit and private sector actors, as well as civil society. Students will examine the roles of these various actors, as well as the nature of civic responsibility. The course will examine the various stages of the policy process, asking the following questions: How does something get defined as a problem that requires a public policy response? How do we think about what the options are for this response, and how do we choose among them? What are the factors that contribute to successful policy implementation? How do we evaluate the success of public policies? These questionswill be addressed using examples of current public policy problems, and students will be expected to engage in individual and collaborative work to design responses to those problems.
**Prerequisite:** PLCY100.
**Restriction:** Must be in a major in PLCY-School of Public Policy.

**PLCY301 Sustainability (3 Credits)**
Designed for students whose academic majors would be enhanced by the complementary study of a widely shared but hard-to-operationalize aspiration: that present choices should preserve or improve future options rather than foreclose or degrade them. How should we understand sustainability? How might we achieve it? How would we know if we had achieved it? And how could sustainability activists of a rising generation lead by example?
**Cross-listed with:** AGNR301.
**Credit Only Granted for:** AGNR301, PUAF301, or PLCY301.
**Formerly:** PUAF301.

**PLCY302 Examining Pluralism in Public Policy (3 Credits)**
Understanding pluralism and how groups and individuals coexist in society is an essential part of the public policy process. This course will examine the ways in which the diverse experiences of race, gender, ethnicity, class, orientation, identity, and religion impact the understanding of and equitable delivery of public policy. The examination of how identity development shapes our understanding of society and influences the decision-making process is central to students' shaping policy that is truly for the people. This course will equip students with the skills needed to analyze pluralism and draw conclusions about the application of various theories to public policy issues.
**Credit Only Granted for:** PLCY302 or PUAF302.
**Formerly:** PUAF302.

**PLCY303 Public Economics Raising and Spending the People's Money (3 Credits)**
Applied course in public finance, including introductions to resource mobilization (including taxation), macroeconomic policy, key public expenditure policies, and government budgetary processes and politics. The course will build on the foundations from ECON 202 to address the specific application of public finance principles to solving public problems. The course will focus on the principles of welfare economics (including market failure), economic principles as applied to particular spending programs and tax choices, and issues and institutions involved in the allocation and management of resources both at a national and subnational level. The focus of the course is on these issues from both a domestic and global perspective.
**Prerequisite:** ECON200.
**Restriction:** Must be in a major in PLCY-School of Public Policy.

**PLCY304 Evaluating Evidence: Finding Truth in Numbers (4 Credits)**
Enables students to understand the research done by others with a sufficiently skeptical eye to allow them to determine whether the findings of the research are valid given the assumptions made and methods used. This will involve, in part, thinking about the various problems in research design or conduct that could lead to faulty conclusions. It will also involve being able to differentiate between credible sources of information and those that are not objective. At the conclusion of the course, students should be able to differentiate objective evidence from political argumentation.
**Prerequisite:** STAT100.
**Restriction:** Must be in a major in PLCY-School of Public Policy.

**PLCY306 Public Policy Analysis in Action (3 Credits)**
Utilizes our unique location in the Washington, D.C. region to create a laboratory within which to analyze local, regional, national and international policy problems. Students will be put into teams and assigned to real and timely policy cases. The course will include meetings and field trips with local leaders in the field, ideally connected to the cases. Student will then expand and apply their use of policy analysis and evaluation skills to define those problems, analyze alternative responses, devise appropriate strategies for implementation, and evaluate the success of the proposed policy and implementation. The course will conclude with team presentations to local leaders and faculty. This distinctive course will serve to prepare students for their client-based senior capstone course.
**Restriction:** Must have earned a minimum of 60 credits; and must be in a major in PLCY-School of Public Policy.

**PLCY309 Internship in Political Institutions: State and Local (3-6 Credits)**
Offers students supervised internship placements in state and local political or public policy organizations.
**Prerequisite:** Permission of PLCY-School of Public Policy.
**Repeatable to:** 12 credits if content differs.
**Formerly:** PUAF349 and PLCY349.

**PLCY310 Nonprofit Leadership and Social Innovation in Action (3 Credits)**
Furthers students understanding of topics in leadership, social innovation, resource development, community mobilization through networks, and the role of policy making in creating change. This course will further students understanding of the creation and leadership of nonprofits, social ventures, governance and boards; strategic planning and partnerships; advocacy and public policy processes; community outreach; working in teams, effective communications, and cross-sector approaches to scaling up social impact.
**Prerequisite:** PLCY 213.

**PLCY311 Women in Leadership (3 Credits)**
Examines the role of women in the leadership process including the participation of women as activists, voters, advocates, public leaders and as agents of change through various avenues including, among others, public service (elected and appointed), the media, community service, political organizations, and the nonprofit sector.
**Credit Only Granted for:** PUAF311, PLCY311 or PUAF359W.
**Formerly:** PUAF359W.

**PLCY313 Advocacy in the American Political System (3 Credits)**
Introduces students to the creation of law through the legislative process with a special focus on the Maryland General Assembly.
**Credit Only Granted for:** PUAF313, PLCY313 or PUAF359C.
**Formerly:** PUAF359C.

**PLCY359 Contemporary Issues in Political Leadership and Participation (3 Credits)**
Special topics in political leadership and participation.
**Prerequisite:** Permission of PLCY-School of Public Policy.
**Repeatable to:** 9 credits if content differs.
**Credit Only Granted for:** PLCY359 or PUAF359.
**Formerly:** PUAF359.

**PLCY380 Innovation and Social Change: Do Good Now (3 Credits)**
Introduces students to the concept of social innovation while exploring the many mechanisms for achieving social impact. It is team-based, highly interactive and dynamic, and provides an opportunity for students to generate solutions to a wide range of problems facing many communities today. Deepens the students understanding of entrepreneurship and innovation practices by guiding them through the creation and implementation process as applied to a project idea of their choice.
**Credit Only Granted for:** ARHU380, BSOS388B, PLCY388D, or PLCY380.
**Formerly:** PLCY388D.

**PLCY386 Experiential Learning (1-6 Credits)**
**Prerequisite:** Permission of PLCY-School of Public Policy.
**Credit Only Granted for:** PLCY386 or PUAF386.
**Formerly:** PUAF386.

**PLCY388 Special Topics in Public Policy (1-3 Credits)**
Advanced special topics focusing on an interdisciplinary topic related to Public Policy.
**Prerequisite:** Permission of PLCY-School of Public Policy.
**Restriction:** Sophomore standing or higher.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** PLCY388 or PUAF388.
**Formerly:** PUAF388.

**PLCY396 Fellowship Program in Political Leadership (2-6 Credits)**
Individual instruction course.
**Prerequisite:** Permission of PLCY-School of Public Policy.
**Restriction:** Must be enrolled in the full-time fellowship program.
**Credit Only Granted for:** PLCY396 or PUAF396.
**Formerly:** PUAF396.

**PLCY398 Fellowship Program in Political Leadership (3-6 Credits)**
**Prerequisite:** Permission of PLCY-School of Public Policy.
**Restriction:** Must be enrolled in the full-time fellowship program.
**Repeatable to:** 12 credits if content differs.
**Credit Only Granted for:** PLCY398 or PUAF398.
**Formerly:** PUAF398.

**PLCY399 Directed Study in Public Policy (1-6 Credits)**
Guidance for the advanced student capable on interdisciplinary study on special projects under the supervision of faculty.
**Prerequisite:** Permission of PLCY-School of Public Policy.
**Repeatable to:** 12 credits if content differs.
**Credit Only Granted for:** PLCY399 or PUAF399.
**Formerly:** PUAF399.

**PLCY400 Senior Capstone (3 Credits)**
Public Policy students will take the skills and knowledge gained through their curriculum and apply them through their senior capstone course. Students will work in teams on problems and issues presented by outside clients, with guidance from faculty facilitators and interaction with the clients. Each team will work with the client to address a particular problem and produce a mutually agreed upon outcome. These hands on projects will advance students' understanding of the analytical, leadership, communication and problem solving skills necessary to address today's policy problems while allowing them to gain professional level experience that could contribute to their success in their post UMD endeavors. The course will conclude with an event that allows all teams to present their findings and outcomes to their client while being evaluated by faculty and public policy professionals.
**Prerequisite:** PLCY306.
**Restriction:** Permission of PLCY-School of Public Policy; and must have earned a minimum of 90 credits.

**PLCY401 Contemporary Issues in Public Policy (3 Credits)**
An integrative course that allows policy students to explore the complexities of the policy-making process from the perspective of specific policy topics. They will learn about and discuss subject- based issues in a seminar format led by faculty and policy experts. Site visits to federal agencies, guest speakers, and round table sessions ensure that students receive a variety of real-world perspectives on their chosen policy area.
**Restriction:** Must have earned a minimum of 90 credits.

**PLCY488 Advanced Special Topics in Public Policy (3 Credits)**
Advanced special topics for upper level students focusing on topics related to Public Policy.
**Restriction:** Must have earned a minimum of 60 credits.
**Repeatable to:** 6 credits if content differs.

# PLSC - Plant Sciences

**PLSC110 Introduction to Horticulture (3 Credits)**
An overview to the art and science of horticulture. Relationships between plant science and plant production, the use of horticultural plants and plant stress as influenced by cultural practices.
**Credit Only Granted for:** PLSC100 or PLSC110 and PLSC111.
**Formerly:** PLSC100.

**PLSC111 Introduction to Horticulture Laboratory (1 Credit)**
The goal of this course is to expand your knowledge of the growth and development of horticultural crops. An integrated understanding of horticulture will come from laboratory experiments and field trips. This course is designed to complement lecture material from PLSC 110.
**Corequisite:** PLSC110 or permission of the Department of Plant Science and Landscape Architecture.

**PLSC112 Introductory Crop Science (3 Credits)**
Major crop plants including: anatomy, physiology, morphology, history, use, adaptation, culture, improvement and economic importance.
**Credit Only Granted for:** PLSC101 or PLSC112 and PLSC113.
**Formerly:** PLSC101.

**PLSC113 Introductory Crop Science Laboratory (1 Credit)**
An introduction to the growth, function and identification of agronomic crops and the environment in which they are produced. This course is designed to complement the lecture material from PLSC 112.
**Corequisite:** PLSC112 or permission of the Department of Plant Science and Landscape Architecture.
**Credit Only Granted for:** PLSC101 or PLSC112 and PLSC113.

**PLSC115 How Safe is Your Salad? The Microbiological Safety of Fresh produce (3 Credits)**
As food is produced in larger quantities and made to travel longer distances, keeping our food safe in this day and age is an ever growing challenge. This course will focus on the question of what it takes to grow and maintain safe fruits and vegetables, as food travels along the path from the farm to your fork. Food safety of fresh produce will be discussed from the public health, agricultural, economical and policy perspectives.
**Recommended:** PLSC110 and PLSC111; or (PLSC112 and PLSC113); or BSCI105; or (BSCI170 and BSCI171).

**PLSC120 Mushrooms and Molds (3 Credits)**
Students will learn about how essential fungi (mushroom, molds, and alikes) are in this world and how they affect our daily lives. They will learn how fungi interact with animals, plants and other organisms in positive and negative ways. Also, they will study the importance of fungi in biotechnology and food and how they have shaped many societies throughout history.

**PLSC125 Feeding Ten Billion by 2050: Food Security and Crop Protection (3 Credits)**
A big question concerning global food security is "how can we feed 10 billion people in 2050?" This course will stimulate creative thinking about possible solutions particularly from the crop production perspective. The instructors will introduce the concept of food security and different dimensions of this complex issue, identify major constraints to food security, and discuss scientific approaches that may be used to meet the grand challenge. Emphasis will be placed on topical and controversial issues such as the impact of climate change, biofuel production and GM crops on food security, and novel strategies that can improve food security.

**PLSC130 Did Yeast Create Civilization? (3 Credits)**
Did yeast create civilization? Fermented foods have played a major role in the transition from nomadic to settled agrarian societies, the establishment of social and religious customs, the expansion of empires, and modern economies. To what extent are our past and current attitudes towards fermented foods rooted in historical and cultural imprints? Explore the central role of fermentation in human history and culture, the basic microbiological processes underlying fermentation processes, and the processes used to produce and distribute fermented foods. Find out how the fruits, grains, and dairy products used to produce fermented foods are grown and selected. Students will learn about the development and modern use of fermented dairy products, pickles, bread, tea, chocolate, wine, beer, distilled liquors, and pharmaceutical/manufactured products.
**Recommended:** CHEM103, CHEM131, CHEM135, or CHEM146.
**Cross-listed with:** AGST130.
**Credit Only Granted for:** AGST130 or PLSC130.

**PLSC201 Plant Structure and Function (3 Credits)**
The relationship between plant structure and function and how the environment influences changes in the physiology to control higher plant growth and development are studied. Survey of the organizational structure of plants from the molecular to the morphological level and gain an understanding of how the plant functions to grow and reproduce.
**Prerequisite:** Minimum grade of C- in PLSC110 and PLSC111 or (PLSC112 and PLSC113); and minimum grade of C- in CHEM131 and CHEM132.

**PLSC203 Plants, Genes and Biotechnology (3 Credits)**
An overview of the history, genetics, and reproductive mechanisms for agronomic and horticultural plants that examines mechanisms of genetic improvement ranging from traditional plant breeding to tissue culture and genetic engineering. Social and political issues such as germplasm preservation and international intellectual property rights will also be discussed.
**Prerequisite:** Minimum grade of C- in BSCI103; or minimum grade of C- in BSCI170 and BSCI171.

**PLSC205 Introduction to Turf Science and Management (4 Credits)**
Principals of turf science and culture with emphasis on turfgrass anatomy, morphology, and physiology. The role of cultural interventions in achieving specific aesthetic and functional objectives is examined for multiple turf uses. Pest problems typically encountered in turfgrass management are also covered.
**Credit Only Granted for:** PLSC205 or PLSC305.
**Formerly:** PLSC305.

**PLSC206 Plant Structure and Function Laboratory (1 Credit)**
Provide hands-on experience for students who are concurrently taking PLSC201 or other interested students and train students how to collect quantitative data from plants and perform statistical analysis (i.e., Student's t-test and chi-square analysis) of the data using Excel. The students will also have opportunity to access and analyze biological datasets from publicly available sources to build phylogenetic trees and explore gene expression patterns.
**Prerequisite:** PLSC201 or permission of instructor .

**PLSC226 Plant Diversity (4 Credits)**
Students will learn to identify and understand relationships among major plant families of northeastern North America, especially of the Mid-Atlantic region, through lecture, field, and laboratory study. Characteristics and biogeography of and evolutionary relationships among families are emphasized in lecture. These characteristics will be woven together to provide understanding of the ecological and evolutionary drivers of plant diversity and the history of the field. Sight identification of families, genera, and species and keying skills are stressed in field and laboratory sessions.
**Prerequisite:** Minimum grade of C- in PLSC201 and PLSC206; or permission of instructor.

**PLSC244 Herbaceous Plants (3 Credits)**
Herbaceous plants are integral components of residential and commercial landscapes. Students will become familiar with 250 annual and perennial plants. The emphasis will be on plant management requirements and seasonal variation in the landscape.
**Prerequisite:** PLSC110 and PLSC111; or (PLSC112 and PLSC113).
**Credit Only Granted for:** PLSC244 or PLSC489A.
**Formerly:** PLSC489A.

**PLSC250 Lawns in the Landscape: Environmental Hero or Villain? (3 Credits)**
Examination of the lawn as an element in the anthropogenic landscape and its influence on global warming, regional air and water quality, ecological diversity, mammalian pesticide exposure and consumptive water use. Demographic and socioeconomic factors are examined in the context of being predictors of landscape aesthetic desires and lawn management behaviors. Policies that incentivize lawn alternatives or changes in lawn management behavior are discussed.Cross-listed with ENSP250.
**Credit Only Granted for:** ENSP250 or PLSC250.

**PLSC251 Financial Applications for the Green Industry (3 Credits)**
An introduction to the application of financial principles in the Green Industry business sector. Accounting, pricing, and estimating, job cost management and production efficiency are discussed and manifested in Scholarship In Practice exercises, case studies and a business plan project.
**Credit Only Granted for:** PLSC361 or PLSC251.
**Formerly:** PLSC361.

**PLSC253 Woody Plants for Mid-Atlantic Landscapes I (3 Credits)**
A field and laboratory study of trees, shrubs, and vines used in ornamental plantings. Major emphasis is placed on native deciduous plant materials.
**Prerequisite:** Minimum grade of C- in PLSC110 and PLSC111.

**PLSC254 Woody Plants for Mid-Atlantic Landscape II (3 Credits)**
A field and laboratory study of trees, shrubs, and vines used in ornamental plantings. Major emphasis is placed on introduced and evergreen plant materials.
**Prerequisite:** Minimum grade of C- in PLSC110, PLSC111, and PLSC253; or permission of instructor.

**PLSC271 Plant Propagation (3 Credits)**
A study of the principles and practices in the propagation of plants.
**Prerequisite:** Minimum grade of C- in PLSC110 and PLSC111; or minimum grade of C- in BSCI170 and BSCI171.

**PLSC272 Principles of Arboriculture (3 Credits)**
The establishment and maintenance of healthy trees in an urban setting will be studied. Lectures will focus on the environmental constraints to tree development in the city, and the role of physiological processes in regulating tree vigor. Laboratory exercises will cover the unique aspects of urban soils, tree valuation procedures, pruning and training, and supervised climbing.
**Cross-listed with:** INAG272.
**Credit Only Granted for:** INAG272 or PLSC272.

**PLSC303 Global Food Systems (3 Credits)**
An introduction to the global food system and its agricultural, biophysical, and socioeconomic domains. The problems and potentials for increasing world food supply based on current agronomic knowledge. Emphasis on international aspects of food crop production as its interrelationships with people and the environment in the developing world.
**Prerequisite:** Minimum grade of C- in BSCI170 and BSCI171; or students who have taken courses with comparable content may contact the department.

**PLSC321 Landscape Structures and Materials (3 Credits)**
An examination of the use, properties, and detailing of materials used in landscape construction. The use and design of structures in the landscape.
**Prerequisite:** PLSC320.
**Credit Only Granted for:** LARC321 or PLSC321.

**PLSC388 Honors Thesis Research (3-6 Credits)**
Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.
**Prerequisite:** Must be in the AGNR Honors Program.
**Repeatable to:** 6 credits if content differs.

**PLSC389 Internship (1-3 Credits)**
Credit will be given for practical work carried out at one or more horticultural, agronomic, landscape industries, botanical gardens, or arboreta under formally arranged internships.
**Prerequisite:** Permission of AGNR-Plant Science & Landscape Architecture department.
**Restriction:** Junior standing or higher. And must be in Plant Sciences program; or must be in Landscape Architecture program.
**Repeatable to:** 6 credits if content differs.

**PLSC398 Seminar (1 Credit)**
Oral presentation of the results of investigational work by reviewing recent scientific literature in the various phases of natural resource sciences, horticulture and agronomy.
**Restriction:** Senior standing. And must be in Landscape Architecture program; or must be in Plant Sciences program.

**PLSC399 Special Problems in Plant Science (1-3 Credits)**
Research projects in Plant Science including field, greenhouse, laboratory, studio and/or library studies. Research is conducted under the direction of a faculty member.
**Prerequisite:** Permission of the instructor .
**Repeatable to:** 6 credits.

**PLSC400 Plant Physiology (4 Credits)**
An in-depth examination of the unique molecular and physiological principles necessary to understand how plants grow and respond to the environment at the cellular and organismal levels. Plants evolved unique metabolism and survival strategies, so students should be prepared to enter a world that may be new to them.
**Prerequisite:** Minimum grade of C- in BSCI170 and BSCI171; or minimum grade of C- in PLSC201; and minimum grade of C- in CHEM231 and CHEM232; or minimum grade of C- in CHEM237.
**Cross-listed with:** BSCI442.
**Credit Only Granted for:** BSCI442 or PLSC400.

**PLSC401 Pest Management Strategies for Turfgrass (3 Credits)**
Interdisciplinary view of weed, disease, and insect management from an agronomy perspective. Plant responses to pest invasion, diagnosis of pest-related disorders, and principles of weed, disease and insect suppression through cultural, biological and chemical means are discussed.
**Prerequisite:** PLSC305.

**PLSC402 Sports Turf Management (3 Credits)**
Sports turf management, including design, construction, soil modification, soil cultural techniques, pesticide use, fertilization, and specialized equipment.
**Prerequisite:** PLSC305 and PLSC401.

**PLSC404 Plant and Fungal Metabolism (3 Credits)**
An introduction to biochemistry and metabolism in plants and fungi, covering the biosynthesis of compartments in plant and fungal cells with biological molecules such as nucleic acids, amino acids and lipids. Energy flow processes such as photosynthesis, carbohydrate metabolism and respiration, are covered in the course. The integration of different pathways in plant development and responses to environmental stresses will be discussed.
**Prerequisite:** Minimum grade of C- in BSCI170 and BSCI171; or minimum grade of C- in PLSC201 and PLSC206.

**PLSC405 Agroecology (3 Credits)**
How can we balance the multiple, and often competing objectives of sustainable agricultural intensification to promote both agricultural productivity and human wellbeing? The answer to this question requires a transdisciplinary, agroecological perspective. Agroecology is the integrative study of the ecology of the entire food system, encompassing ecological, economic and social dimensions. This course is designed to introduce various topics in agroecology (e.g. organic agriculture, biodiversity, the Farm Bill). We will take an ecosystems approach to the study of agriculture that will enable students to analyze the environmental, social, and economic interconnections within various types of agricultural systems locally and globally.
**Prerequisite:** At least one course in ecology with a minimum grade of C-; or permission of instructor.
**Recommended:** BSCI361 or PLSC471; or any BSCI or ENST ecology course.
**Credit Only Granted for:** PLSC405 or PLSC605.
**Additional Information:** Class will be held on campus, with two day-long field trips to local farms.

**PLSC410 Commercial Turf Maintenance and Production (3 Credits)**
Agronomic programs and practices used in hydroseeding, commercial lawn care, sod production and seed production. Current environmental, regulatory and business management issues confronting the turfgrass industry.
**Prerequisite:** PLSC305; or permission of AGNR-Plant Science & Landscape Architecture department.

**PLSC411 Plant Genetics (3 Credits)**
An introduction to genetic principles and technologies in plants, centered on linking phenotype to genotype. Topics include Mendelian inheritance of single and complex traits, epigenetics, population genetics and plant breeding. Examples on creating and mapping genetic mutations in both model plants and non-model crops are discussed. Current genetic and genomic approaches are highlighted, such as genome engineering and reprogramming, TILLING, and genome-wide association mapping.
**Prerequisite:** Minimum grade of C- in BSCI170 and BSCI171.

**PLSC420 Principles of Plant Pathology (4 Credits)**
An introduction to the causal agents, nature and management of plant diseases with particular attention paid to economically important diseases of horticultural and agronomic crops.
**Prerequisite:** Minimum grade of C- in CHEM131, CHEM132, and PLSC201; or students who have taken courses with comparable content may contact the department.

**PLSC425 Green Roofs and Urban Sustainability (1 Credit)**
The integration of disciplines associated with sustainability issues. Topics range from plant science to design to policy, all of which can contribute to improving the urban environment.
**Credit Only Granted for:** PLSC425 or PLSC489V.
**Formerly:** PLSC489V.

**PLSC427 Plant Microbe Associations (3 Credits)**
Encompasses advanced investigation and analyses of the ecology, physiology and molecular genetics of plant-microbe interactions along with their impact on crop production, ecological and food production systems.
**Credit Only Granted for:** PLSC489W or PLSC427.
**Formerly:** PLSC489W.

**PLSC430 Water and Nutrient Planning for the Nursery and Greenhouse Industry (3 Credits)**
Skills will be developed in order to write nutrient management plans for the greenhouse and nursery industry. Completion of this course can lead to professional certification in nutrient planning by the State of Maryland after MDA examinations are passed.
**Prerequisite:** Minimum grade of C- in CHEM131 and CHEM132; or minimum grade of C- in ENST200; or permission of instructor.
**Recommended:** PLSC432.

**PLSC432 Greenhouse Crop Production (3 Credits)**
The commercial production and marketing of ornamental plant crops under greenhouse, plastic houses and out-of-door conditions. Integrating an understanding of basic plant physiological mechanisms into the decision-making process for the design, construction, maintenance and day-to-day management of greenhouse operations.
**Prerequisite:** Minimum grade of C- in PLSC201 .

**PLSC433 Technology of Fruit and Vegetable Production (4 Credits)**
A critical analysis of research work and application of the principles of plant physiology, chemistry and botany to practical problems in the commercial production of fruit and vegetable crops.
**Prerequisite:** Minimum grade of C- in PLSC201, PLSC271, and ENST200; or students who have taken courses with comparable content may contact the department.
**Restriction:** Junior standing or higher.

**PLSC452 Environmental Horticulture (3 Credits)**
Environmental horticulture principles used in the establishment and maintenance of plant materials in residential and commercial landscapes will be addressed. The effect of soil conditions, environmental factors, and commercial practices will be discussed in relation to the growth and development of newly-installed plant materials. Field diagnostics will be used by students to assess significant problems of plant decline. Environmental sustainability will be combined with current commercial practices of storm water management, nutrient management, and irrigation management to achieve an integrated approach to plant management.
**Prerequisite:** Minimum grade of C- in PLSC110 and PLSC111; or minimum grade of C- in PLSC112 and PLSC113; and minimum grade of C- in PLSC253 and PLSC254.

**PLSC453 Weed Science (3 Credits)**
Weed identification, ecology, and control (cultural, mechanical, biological, and chemical methods).

**PLSC460 Application of Knowledge in Plant Sciences (3 Credits)**
A capstone course based on interactions with plant science professionals and student-led class discussions. Students will apply their knowledge and experience to practical issues in the discipline, further develop critical thinking ability, and enhance their communication, teamwork, and professional skills. Topics will include nutrient management, integrated pest management, plant interactions with urban and rural ecosystems, planning of public grounds, plant biotechnology, and teaching skills.
**Prerequisite:** Minimum grade of C- in PLSC110 and PLSC111; or minimum grade of C- in PLSC112 and PLSC113; or minimum grade of C- in PLSC201; or permission of instructor.
**Recommended:** ENGL393 and ENST200; and (PLSC389 or PLSC399).
**Restriction:** Senior standing or higher.

**PLSC461 Cultural Management of Nursery and Greenhouse Systems: Substrates (1 Credit)**
One of three 1-credit modules (PLSC461, PLSC462 and PLSC464)covering the management techniques used in the intensive culture of plants in commercial operations. Specifically, this module covers the composition, handling, physical and chemical properties of substrates and how they should be managed to maximize plant growth.
**Credit Only Granted for:** PLSC461 or PLSC489T.
**Formerly:** PLSC489T.
**Additional Information:** Course material is delivered primarily online, but a four hour face-to-face lecture/lab will be held at the end of the module. PLSC461, PLSC462 and PLSC464 will be taught sequentially during the semester.

**PLSC462 Cultural Management of Nursery and Greenhouse Systems; Irrigation (1 Credit)**
One of three 1-credit modules (PLSC461, PLSC462 and PLSC464) covering the management techniques used in the intensive culture of plants in commercial operations. Specifically, this module covers water quantity and quality issues, water supply (basic hydraulics), irrigation system design and irrigation system evaluation (performance) to maximize water application efficiency.
**Credit Only Granted for:** PLSC462 or PLSC489W.
**Formerly:** PLSC489W.
**Additional Information:** Course material is delivered primarily online, but a four hour face-to-face lecture/lab will be held at the end of the module. PLSC 461, 462 and 464 will be taught sequentially during the semester.

**PLSC464 Cultural Management of Nursery and Greenhouse Systems: Nutrients (1 Credit)**
One of three 1-credit modules (PLSC461, PLSC462 and PLSC464) covering the management techniques used in the intensive culture of plants in commercial operations. Specifically, this module covers the basics of fertilization, different fertilization strategies and nutrient use and efficiency, to optimize nutrient application practices in intensive plant production systems.
**Credit Only Granted for:** PLSC464 or PLSC489Z.
**Formerly:** PLSC489Z.
**Additional Information:** Course material is delivered primarily online, but a four hour face-to-face lecture/lab will be held at the end of the module. PLSC 461, 462 and 464 will be taught sequentially during the semester.

**PLSC471 Forest Ecology (3 Credits)**
An understanding of the forest ecosystem, its structure and the processes that regulate it are provided. It also considers changes that occur in forests, the interaction of environment and genetics in promoting ecosystem sustainability, and the role of human influences on urban forest ecosystems.
**Prerequisite:** Minimum grade of C- in PLSC201; or minimum grade of C- in BSCI160 and BSCI161; or minimum grade of C- in BSCI106.

**PLSC472 Capstone-Urban Forest Project Management (3 Credits)**
Students will synthesize the ideas and information learned from their studies in urban forestry. Working in teams, students will complete projects involving real-world issues. Student projects will use scientific, social, political and ethical considerations in an interdisciplinary approach to provide solutions to their problem.
**Prerequisite:** Minimum grade of C- in ENST200, PLSC272, and PLSC471.
**Restriction:** Senior standing or higher; and must be in a major within AGNR-Plant Science & Landscape Architecture department.

**PLSC473 Woody Plant Physiology (3 Credits)**
Concentration is placed on physiological processes important to woody plant growth and development. Emphasis will be placed on current concepts and theories of how woody plants grow and develop, and the critical assessment of current research in woody plant physiology. Course readings will include textbook assignments and selected papers from the current scientific literature.
**Prerequisite:** Minimum grade of C- in PLSC400 or BSCI442; or minimum grade of C- in PLSC201 and PLSC206; or students who have taken courses with comparable content may contact the department.

**PLSC480 Urban Ecology (3 Credits)**
Cities are rapidly increasing in number and size across the globe, transforming local ecosystems. This course examines urban environments as coupled social-ecological systems at multiple scales, from streets and parks to urban landscapes patterns and global patterns of biodiversity. Ecological principles are applied in the urban context, including habitats, biodiversity, ecological processes, and ecosystem services of urban environments, with applications to problems in urban land management, decision-making and design.
**Prerequisite:** Minimum grade of C- in PLSC471, ENST360, BSCI363, or BSCI160; or other coursework/experience considered for instructor permission.
**Additional Information:** Class will be held both on campus and at other locations such as the U.S. Botanic Garden, local parks, and urban and suburban locations off campus.

**PLSC481 Vegetation Assessment and Analysis (2 Credits)**
An overview of vegetation assessment through the collection of data in the field (e.g. plots and transects) and the analysis of existing data and remotely detected images (e.g. Aerial photographs and GIS layers).
**Prerequisite:** PLSC110 and PLSC111; or (BSCI160 and BSCI161); or permission of instructor.
**Recommended:** PLSC201, BSCI360, PLSC226, or PLSC471.

**PLSC489 Special Topics in Plant Science (1-3 Credits)**
A lecture and or laboratory series organized to study a selected phase of Plant Science not covered by existing courses. Credit according to time scheduled and organization of the course.
**Repeatable to:** 6 credits if content differs.

# PORT - Portuguese

**PORT103 Intensive Elementary Portuguese (4 Credits)**
Covers speaking, reading, writing, listening, and culture of Portuguese-speaking world.
**Prerequisite:** Must have appropriate World Language Placement Test (WLPT) score.
**Credit Only Granted for:** PORT103 or PORT104.
**Formerly:** PORT104.

**PORT203 Intensive Intermediate Portuguese (4 Credits)**
Covers speaking, reading, writing, listening, and culture of Portuguese-speaking world.
**Prerequisite:** PORT103 or PORT104; or must have appropriate World Language Placement Test (WLPT) score.
**Credit Only Granted for:** PORT203 or PORT204.
**Formerly:** PORT204.

**PORT205 Intermediate Reading and Conversation in Portuguese I (3 Credits)**
Development of spoken Portuguese at intermediate level based on written assignments and exams on readings in a variety of genres.
**Prerequisite:** PORT203; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**PORT207 Intermediate Reading and Conversation in Portuguese II (3 Credits)**
Advanced practice of oral and written Portuguese. Reading and discussions of texts, review of grammar, and vocabulary practice.
**Prerequisite:** PORT205; or students who have taken courses with comparable content may contact the department.
**Restriction:** Not open to native/fluent speakers of Portuguese.

**PORT222 Cannibals, Savages and Carnivalization: The Making of Brazilian National Culture (3 Credits)**
Introduction to the main concepts, cultural movements, and ideas that have shaped Brazilian modern culture. Exploring some of the ways in which cultural cannibalism, savagery, and carnivalization have been deployed as symbolic frameworks in the construction of a national identity through analyses of film, literature, music and visual arts. Taught in English.
**Credit Only Granted for:** PORT222 or PORT228C.
**Formerly:** PORT228C.

**PORT224 Brazilian Culture (3 Credits)**
Pluralistic formation of Brazilian culture, based on European, African and Indian contributions. Lectures, discussions, slides, video, and film presentations. Taught in English.

**PORT228 Selected Topics in Latin American Literature and Society (3-6 Credits)**
Variable cultural studies topics on literature and society in contemporary Latin America. Taught in English.
**Cross-listed with:** SPAN228.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** PORT228 or SPAN228.

**PORT229 Selected Topics in Latin American Culture (1-3 Credits)**
Varied topics in Latin America culture.
**Repeatable to:** 9 credits if content differs.

**PORT230 Brazilian Portuguese through Film (3 Credits)**
Intermediate practice of oral and written Portuguese through discussion of Brazilian movies, along with grammar review and vocabulary exercises. Taught in Portuguese.
**Prerequisite:** PORT205; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**PORT234 Issues in Latin American and Caribbean Studies I (3 Credits)**
Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America's cultural mosaic, migration and urbanization. Democratization and the role of religions. Taught in English.
**Cross-listed with:** LACS234, SPAN234.
**Credit Only Granted for:** LASC234, PORT234, SPAN234, or LACS234.
**Formerly:** LASC234.

**PORT235 Issues in Latin American and Caribbean Studies II (3 Credits)**
Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. Taught in English.
**Cross-listed with:** LACS235, SPAN235.
**Credit Only Granted for:** LASC235, PORT235, SPAN235, or LACS235.
**Formerly:** LASC235.

**PORT269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**PORT320 Survey of Portuguese Literature (3 Credits)**
Portuguese poetry, fiction and drama from the Twelfth Century to the present. Taught in English.

**PORT332 Brazilian Cinema (3 Credits)**
Brazilian films from the late 1950s to the present with a special view to the relationship between cinema, society, historical dates, and social changes in Brazil. Taught in English.
**Cross-listed with:** CINE332.
**Credit Only Granted for:** PORT332, CINE332, or FILM332.
**Formerly:** FILM332.

**PORT369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**PORT386 Experiential Learning (3-6 Credits)**
**Restriction:** Permission of ARHU-School of Languages, Literatures, and Cultures department; and junior standing or higher.

**PORT388 Special Topics in Brazilian Studies (3 Credits)**
Exposes students to textual, visual and aural products to explore how Brazil has been shaped from within and abroad. Focuses on the broad meaning and impact on Brazilian culture and social formation. Taught in English.
**Repeatable to:** 6 credits if content differs.

**PORT399 Independent Study in Portuguese (1-3 Credits)**
Specific readings in literature under the supervision of a faculty member of the department.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 3 credits.

**PORT405 Portuguese for Spanish Speakers (3 Credits)**
Intensive basic grammar, reading and auditory comprehension. Native or acquired fluency in Spanish required.
**Restriction:** Must have native or acquired fluency in Spanish.

**PORT408 Special Topics in Portuguese Literature (3 Credits)**
Major themes and literary developments from the late 18th century to the present.
**Repeatable to:** 6 credits if content differs.

**PORT409 Special Topics in Brazilian Literature (3-6 Credits)**
Major themes and literary development from the late eighteenth century to the present. Specific topic to be announced each time the course is offered.

**PORT478 Themes and Movements of Luso-Brazilian Literature in Translation (3 Credits)**
A study of specific themes and movements either in Portuguese or Brazilian literature, as announced. Designed for students for whom the literatures would be inaccessible in Portuguese.
**Repeatable to:** 6 credits if content differs.

**PORT480 Machado de Assis (3 Credits)**
Fiction of Machado de Assis covering his romantic and realistic periods.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.

# PSYC - Psychology

**PSYC100 Introduction to Psychology (3 Credits)**
A basic introductory course intended to bring the student into contact with the major problems confronting psychology and the more important attempts at their solution.

**PSYC123 The Psychology of Getting Hired (1 Credit)**
Designed to introduce students to the science behind the hiring process and to prepare individuals with the academic and practical training required. Together we will explore psychological principles that influence the selection process and how individuals can apply them for the competitive edge that makes others Fear the Turtle!
**Restriction:** Must not be in a Robert H. Smith School of Business degree program.
**Additional Information:** Cannot be used in place of BMGT367 toward a degree program in the Robert H. Smith School of Business.

**PSYC138 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**PSYC200 Statistical Methods in Psychology (3 Credits)**
A basic introduction to quantitative methods used in psychological research.
**Prerequisite:** PSYC100; and 1 course with a minimum grade of C- from (STAT100, MATH107, MATH111, MATH120, MATH130, MATH136, or MATH140).

**PSYC202 Introduction to Neuroscience (3 Credits)**
In an evolutionary sense, the job of the nervous system is to produce, control, and coordinate behaviors that help an animal survive and reproduce. Neuroscience is the study of how the nervous system does that. Provides a broad introduction to neuroscience, always keeping the behavioral consequences in view.
**Prerequisite:** Minimum grade of C- in BSCI170 and BSCI171.
**Cross-listed with:** NEUR200.
**Credit Only Granted for:** PSYC309U, NEUR200, PSYC202 or PSYC301.
**Formerly:** PSYC309U.

**PSYC210 Personality and Temperament: Developmental Origins, Brain Bases, and Clinical Implications (3 Credits)**
What is known about what makes each of us unique? How do these differences contribute to enduring differences in health & wealth? We will review recent research in humans and non-humans aimed at understanding the psychological & biological mechanisms underlying stable individual differences in personality. We will discuss the phylogenetic and ontogenetic origins of temperament, measurement issues, fundamental dimensions of personality across the lifespan, neurobiological substrates of temperament/personality, mechanisms contributing to stability and change, implications for psychopathology, & broader implications for public/macroeconomic policy.
**Prerequisite:** PSYC100.
**Restriction:** Must be in Psychology program.

**PSYC221 Social Psychology (3 Credits)**
The influence of social factors on the individual and on interpersonal behavior. Includes topics such as conformity, attitude change, personal perception, interpersonal attraction, and group behavior.
**Prerequisite:** PSYC100.

**PSYC232 Psychology of Racism (3 Credits)**
Explores the causes, correlates, and consequences of racial prejudice in the United States and other national contexts. Using lecture, readings, and discussion, we will examine the psychological theory and research on what processes underlie and motivate racial prejudice; how racial prejudice is experienced by its targets; how racial prejudice pervades our culture and social institutions; and how racial prejudice is learned, maintained, and ultimately changed.
**Restriction:** Limited to Psychology majors; if spaces remain in the course, will open to all majors.

**PSYC234 Living the Good Life: The Psychology of Happiness (3 Credits)**
What are the secrets to living a happy life? Can happiness be found within the context of war, a depressed economy, violence and other major stressors? Are some people born happier than others? This course will teach you the scientific process that psychologists use to study happiness (and related emotional variables) and give you the opportunity to practice applying that process in a number of ways. You will learn how we (a) gather and critically evaluate research findings in the existing literature, (b) integrate those findings into coherent and testable theories, (c) design and conduct valid scientific research that tests those theories and extends our knowledge, and (d) effectively communicate our theories and findings to a wide range of audiences. The result of the process is a more accurate and objective understanding of happiness, and that is what prepares you to apply your scientific understanding to explain and influence a wide range of outcomes.
**Credit Only Granted for:** PSYC234 or PSYC289D.
**Formerly:** PSYC289D.

**PSYC237 Psychology of Evil (3 Credits)**
Why is there evil in the world? Are some born evil, or do social, environmental and cultural forces create evil? What makes otherwise good people do evil things? The scientific study of evil epitomizes the fundamental challenge that psychology faces in dissecting the role of biology (nature) and the social context (nurture).
**Credit Only Granted for:** PSYC237 or PSYC289E.
**Formerly:** PSYC289E.

**PSYC238 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**PSYC262 Asian American Psychology (3 Credits)**
An overview of how socio-cultural influences impact the development and psychological health of Asian Americans. Other topics include how minority group status, adaptation and identity development influence various aspects of psychological functioning; the role of historic systematic racism; and, how the COVID-19 pandemic has negatively impacted Asian Americans. Students develop a deeper understanding of the role of stereotypes and racism, acculturation, racial identity development, cultural values, gender socialization, behavioral norms, family roles, stressors and social support systems on the mental health, well-being and health of Asian Americans.
**Cross-listed with:** AAST262.
**Credit Only Granted for:** PSYC262, AAST262 or PSYC489Z.
**Formerly:** PSYC489Z.

**PSYC300 Research Methods in Psychology Laboratory (4 Credits)**
A general introduction and overview to the fundamental theoretical, conceptual, and practical issues in psychological research in both the laboratory and the field.
**Prerequisite:** PSYC200.
**Restriction:** Must be in Psychology program.

**PSYC302 Fundamentals of Learning and Behavior (3 Credits)**
Overview of the fundamental types of learning that occur without formal instruction. The course covers fundamentals of classical and instrumental conditioning as studied in a variety of species in addition to more modern theories of learning. We will then explore how these principles influence diverse processes such as memory, attention, extinction, categorization, motivation, and in some cases, how they are implemented in the brain and disrupted in disease.
**Prerequisite:** PSYC100, BSCI170, and BSCI171.
**Restriction:** Restricted to psychology majors during the registration period; all other majors will be placed on a hold file.

**PSYC303 Professional Development for Psychology Majors (1 Credit)**
An investigation of various career and graduate school opportunities available to psychology majors. Students will learn about a wide range of career fields, will learn how to utilize available resources to pursue career goals, and will take steps to advance their professional identity and development.
**Prerequisite:** PSYC123; or permission from the instructor with a completed resume.
**Restriction:** Must have earned a minimum of 60 credits; and must be in the Psychology major.

**PSYC304 Biological Psychology (3 Credits)**
Biological Psychology is the study of the physiological basis of behavior. In this course, we will first cover the basic principles of brain organization and neural transmission. We will then introduce traditional and modern research techniques in the field of behavioral neuroscience. The last portion of the course focuses on specific topics including psychopharmacology, learning and memory, emotion, stress, drug of abuse, neurological disorders (e.g., Alzheimer's disease and Parkinson's disease) and schizophrenia.
**Prerequisite:** PSYC100, BSCI170 and BSCI171; or equivalent.
**Credit Only Granted for:** PSYC301 or PSYC304.
**Formerly:** PSYC301.

**PSYC307 Collective Behavior and Decision Making in Human and Animal Groups (3 Credits)**
Overview of the fundamental principles underlying the organization of animal societies, mathematical models describing these phenomena, and applications to human societies and decision-making. Students will engage in discussions of case studies, analyze and evaluate mathematical simulations, and apply what they have learned from animal groups to practice solving problems currently facing human society.
**Prerequisite:** NEUR200, PSYC304 or PSYC221.
**Recommended:** PSYC200 or equivalent statistics course.
**Credit Only Granted for:** PSYC207 or PSYC307.
**Formerly:** PSYC207.

**PSYC309 Special Topics in Psychology (1-3 Credits)**
Topics of current interest which represent extensions of or additions to topics covered in more general topical courses.
**Prerequisite:** PSYC100.
**Restriction:** Must be in Psychology program; and sophomore standing or higher.
**Repeatable to:** 6 credits if content differs.

**PSYC310 Perception (3 Credits)**
A survey of phenomena and theories of perception including psychological, anatomical, physiological, and environmental factors important in determining how we perceive the world. Historical background will be examined as well as contemporary research.
**Prerequisite:** PSYC100. And CHEM103; or PHYS121; or (BSCI160 and BSCI161); or (BSCI170 and BSCI171); or BSCI105; or BSCI106.
**Restriction:** Must not have completed PSYC410.

**PSYC330 Child Psychopathology (3 Credits)**
Etiology, diagnosis, prevention and treatment of emotional disorders of childhood and adolescence.
**Prerequisite:** PSYC100.
**Restriction:** Must be in Psychology program.
**Credit Only Granted for:** PSYC309B or PSYC330.
**Formerly:** PSYC309B.

**PSYC332 Psychology of Human Sexuality (3 Credits)**
A survey of historical and contemporary psychological views on a wide variety of sexual behaviors; theory and research bearing on the relationship between life span psychological development, psychological functioning, interpersonal processes and sexual behaviors; political and social issues involved in current sexual norms and practices.
**Prerequisite:** PSYC100.

**PSYC334 Psychology of Interpersonal Relationships (3 Credits)**
Research, theory and their practical applications pertaining to the development, maintenance and dissolution of human relationships. Processes critical to successful relating (e.g., communication, bargaining, conflict resolution), and issues associated with troubled dyadic relations with equal partners (e.g., jealousy, spouse abuse, divorce).
**Prerequisite:** PSYC100.

**PSYC336 Psychology of Women (3 Credits)**
A study of the biology, life span development, socialization, personality, mental health, and special issues of women.
**Prerequisite:** PSYC100.
**Cross-listed with:** WGSS336.
**Credit Only Granted for:** PSYC336, WMST336 or WGSS 336.
**Formerly:** WMST336.

**PSYC338 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**PSYC341 Introduction to Memory and Cognition (3 Credits)**
An introduction to the basic concepts of cognitive psychology, the scientific study of mental processes. Topics will include perception, attention, memory, reasoning, and language, with an emphasis on how findings from cognitive psychology can inform real-life thinking (e.g., memory strategies for studying, pitfalls of multitasking, and how/why our memories can fail us).
**Prerequisite:** PSYC200 and PSYC300.

**PSYC344 Health Psychology (3 Credits)**
An examination of how psychological, biological, and social factors impact physical health and well-being. Students will use the biopsychosocial model to analyze topics including stress, health disparities, pain, addiction, disease states (e.g., cardiovascular disease, diabetes, cancer), and primary prevention.
**Prerequisite:** PSYC100; or permission of instructor.
**Restriction:** Must be in the Psychology program; or must be in a major within the School of Public Health; or permission of instructor.
**Credit Only Granted for:** PSYC489U or PSYC344.
**Formerly:** PSYC489U.

**PSYC346 Death, Dying and Grieving: What Future Healthcare Professionals Need to Know (3 Credits)**
What do future healthcare professionals need to know about death dying and grieving? Theories and research related to death, dying and grieving, interventions with the dying and grieving, and communication about end-of-life issues in healthcare settings will be examined. Topics include trajectories of common illnesses, palliative and hospice care, ethical and multicultural issues, suicide, models of grieving, post-traumatic growth, and self-reflection regarding values, biases, and beliefs regarding death. This class will prepare students for careers as psychologists, physicians, nurses, or social workers as they will obtain foundational knowledge, engage in self-reflection, and practice communication skills that can be used with future clients or patients who are dying or grieving the dying/death of a loved one.
**Prerequisite:** PSYC100.

**PSYC353 Adult Psychopathology (3 Credits)**
The nature, diagnosis, etiology, and treatment of mental disorders.
**Prerequisite:** PSYC100.
**Restriction:** Must be in Psychology program.

**PSYC354 Multicultural Psychology in the U.S. (3 Credits)**
What are the psychological implications of racism, sexism, homophobia and other structures of inequality in the United States? How do socio-cultural privilege and oppression influence individual and group thoughts, feelings, and behaviors? This course will take a current events focus to understanding multicultural and social justice issues in psychology with an emphasis on self-reflection, mental health, cross-cultural communication, and strategies for social change.
**Prerequisite:** PSYC100.

**PSYC355 Developmental Psychology (3 Credits)**
Survey of research and theory of psychological development from conception through childhood, stressing physiological, conceptual and behavioral changes, and the social and biological context in which individuals develop.
**Prerequisite:** PSYC100.

**PSYC361 Survey of Industrial and Organizational Psychology (3 Credits)**
A general survey of the field of industrial organizational psychology including such topics as organizational entry (recruitment, selection, training, socialization); organizational psychology (motivation, leadership, job attitudes); productivity in the workplace (performance appraisal, absenteeism, turnover), and the role that the larger environment plays in influencing work behaviors and work attitudes.
**Prerequisite:** PSYC100.

**PSYC362 Introduction to Negotiation (3 Credits)**
Overview of the field of negotiation and the social-psychological and contextual factors that facilitate and inhibit successful negotiation agreements. Students will engage in a variety of negotiation exercises individually and as a team.
**Restriction:** Must be in Psychology program.

**PSYC381 Community Interventions: Domestic Violence I (3 Credits)**
Study theories and research related to the dynamics and effects of intimate partner violence on women and children. Learn about community resources and interventions for survivors of domestic violence. Examine theoretical writings and research findings regarding the effects of gender, culture, race/ethnicity, and socioeconomic status on the experiences of intimate partner violence survivors and their children.
**Prerequisite:** PSYC100.
**Restriction:** Preference given to majors in Human Development, Psychology, and Women, Gender and Sexuality Studies.
**Credit Only Granted for:** PSYC318D, PSYC381, WMST498A or WGSS498A.
**Formerly:** PSYC318D.
**Additional Information:** Students who successfully complete this course may be eligible to enroll in PSYC319 - a service learning class in which students volunteer in the community to work with children who have experienced domestic violence and/or homelessness.

**PSYC389 Experiential Learning (1-6 Credits)**
Internship in psychology-related fields.
**Prerequisite:** PSYC100; and permission of BSOS-Psychology department; and 9 credits in PSYC courses.
**Restriction:** Minimum cumulative GPA of 2.8; and must have earned a minimum 3.0 Psychology GPA.
**Repeatable to:** 9 credits.

**PSYC391 Community Interventions: Domestic Violence II - Service Learning (3 Credits)**
Apply knowledge gained in PSYC318D/PSYC318 to provide interventions to individuals who have experienced domestic violence. Critical analysis of interventions and related research. Ethical and cultural considerations in the provision of services are addressed.
**Prerequisite:** PSYC381 or PSYC318D.
**Restriction:** Preference given to majors in Psychology; Women, Gender, and Sexuality Studies; and Human Development; and permission of BSOS-Psychology department.
**Credit Only Granted for:** PSYC319D or PSYC391.
**Formerly:** PSYC319D.

**PSYC401 Biological Bases of Behavior Laboratory (4 Credits)**
Students will study some of the key concepts in neuroscience by combining behavioral experiments with electrode recordings from neurons controlling the behaviors. We will intensively examine concepts like creation of rhythmic behaviors (walking, flight), neurotransmitters' control of aggression, drug effects on synaptic activity, high-speed neural circuits for effective escape from predators, and CNS maps in the visual system for directing prey capture. Students will learn microsurgery and a broad range of neural recording techniques. We work with animals (invertebrates, cold-blooded vertebrates) every week. A strong biology background will be beneficial.
**Prerequisite:** PSYC300; and (PSYC202, NEUR200, or BSCI353).
**Restriction:** Permission of instructor; and must be in Psychology program; and must have earned a minimum of 85 credits.
**Credit Only Granted for:** PSYC401, NEUR405, BSCI455 or BSCI454.

**PSYC403 Animal Behavior (3 Credits)**
Reviews the theoretical framework underlying the study of animal behavior. The genetic, hormonal and physiological basis of behavior, and the relation to ecological and evolutionary processes will be discussed using examples that range from invertebrate animals to humans.
**Prerequisite:** PSYC202 or NEUR200.

**PSYC404 Introduction to Behavioral Pharmacology (3 Credits)**
Theoretical viewpoints on the interaction of drugs and behavior. Basic principles of pharmacology, the effects of drugs on various behaviors, experimental analysis of drug dependence and abuse, and neuropharmacology and behavior.
**Prerequisite:** PSYC202 or NEUR200.
**Restriction:** Must be in Psychology program.

**PSYC406 Neuroethology (3 Credits)**
A merger between the disciplines of neuroscience and ethology (animal behavior) studies the behavioral functions of nervous systems using a comparative and evolutionary approach. Students will learn how the nervous system controls behavioral patterns in a variety of different organisms ranging from insects to mammals.
**Prerequisite:** PSYC301, PSYC202 or NEUR200.
**Restriction:** Must be in Psychology program.

**PSYC407 Behavioral Neurobiology Laboratory (4 Credits)**
In this lab course, you will collect behavioral and physiological data in humans using classic behavioral paradigms, design models of neural circuits that can explain those behaviors, record neural activity from the roach, and write lab reports describing your results and how they relate to patients with psychiatric illnesses.
**Prerequisite:** PSYC300; and (PSYC202 or NEUR200).
**Restriction:** Must be in Psychology program; and must have earned a minimum of 85 credits.

**PSYC409 Topics in Neurosciences Seminar (1 Credit)**
Current research in neurosciences will be presented, read, and discussed. Emphasis will change each term.
**Restriction:** Permission of BSOS-Psychology department; and junior standing or higher.
**Repeatable to:** 4 credits if content differs.

**PSYC411 Introduction to Functional Magnetic Resonance Imaging (3 Credits)**
An introduction to functional magnetic resonance imaging (fMRI). Students will be taught about formulating testable hypotheses with fMRI, utilizing basic methods in fMRI studies, and understanding existing limitations of fMRI studies in the literature.
**Prerequisite:** PSYC200 and PSYC300; and (PSYC202 or NEUR200).
**Restriction:** Must be in a major within BSOS-Psychology department.
**Credit Only Granted for:** NACS728F or PSYC411.

**PSYC413 Music Cognition (3 Credits)**
Overview of the psychological foundations of musical behavior, focusing on underlying perceptual, cognitive, and neural mechanisms. Students will read and discuss primary behavioral and neuroscience research on how people perceive, remember, enjoy, and use music across the lifespan.
**Prerequisite:** PSYC300.
**Credit Only Granted for:** PSYC413 or PSYC489X.
**Formerly:** PSYC489X.

**PSYC414 Science of Sleep and Biological Rhythms (3 Credits)**
Sleep is a powerful, inescapable, misunderstood, and mysterious presence in our lives. The course will begin with a review of the basics of sleep and biological rhythms with a focus on the underlying neurobiology. The bulk of the semester will be in-depth discussions of topics in sleep and circadian rhythms primarily chosen by the students. A few examples: narcolepsy, sleep in primitive cultures, lucid dreaming, racial and cultural differences in sleep and sleep disorders, the biology of sleep and circadian rhythms during adolescence, CNS control of dreaming, sleep and states of consciousness, sleeping to remember vs. sleeping to forget, legal ramifications of parasomnias, e.g. sleepwalking, and the relationships between sleep deprivation and obesity.
**Prerequisite:** PSYC301, PSYC202, or NEUR200; or permission of instructor.
**Restriction:** Must be in a major within the BSOS-Psychology department; and restricted to psychology majors during the registration period.

**PSYC416 Development of Attachment in Infancy and Childhood: Theory, Research, Methods, and Clinical Implications (3 Credits)**
Overview of the development of attachment during infancy and childhood, examining theory, research methods, research findings, and clinical implications. Students will observe videos of attachment assessments, lead class discussion of readings, make class presentations, and complete writing assignments.
**Prerequisite:** PSYC355; or permission of instructor.
**Restriction:** Must be in a major within the BSOS-Psychology department.

**PSYC417 Data Science for Psychology and Neuroscience Majors (4 Credits)**
A large number of industry and academic jobs require basic programming and data analysis skills. This class represents an introduction to both. Students will learn to program in R and will briefly be introduced to Python, the two most popular programming languages for data science. Common constructs shared by a variety of procedural programming languages will be emphasized. Basic statistics and probability theory will be reviewed from a computational perspective, and more advanced topics introduced. During the course, students will simulate toy data sets which they will then analyze knowing how the data came about, as well as work with real data. The class is highly hands-on with a large number of in-class lab and homework projects. Expect to work a lot and move quickly. Because of the hands-on nature of the class, the overall focus is more on application and execution rather than theory. However, some theory is covered at a high level so that students are aware of why they are doing something, rather than mindlessly writing code.
**Prerequisite:** PSYC200 and PSYC300; and (MATH120, MATH130, or MATH140).
**Credit Only Granted for:** PSYC489D or PSYC417.
**Formerly:** PSYC489D.

**PSYC420 Experimental Psychology: Social Psychology Laboratory (4 Credits)**
A laboratory course to provide a basic understanding of experimental methods in social psychology and experience in conducting research on social processes.
**Prerequisite:** PSYC300 and PSYC221.
**Restriction:** Must be in Psychology program; and must have earned a minimum of 85 credits.

**PSYC424 Communication and Persuasion (3 Credits)**
Effect of social communication upon behavior and attitudes. Theory and research concerning attitude change and social influence.
**Prerequisite:** PSYC221 and PSYC200.

**PSYC425 Psychology and Law (3 Credits)**
An introduction to the intersection of psychology and the criminal justice system, known as the field of legal psychology. The material covered will span the course of the criminal justice process and examine each aspect from a psychological perspective beginning with profiling and moving on to eyewitness memory and judgements through perpetrator memories and interrogation techniques. These aspects will be evaluated with a research lens as well as an applied outlook.
**Prerequisite:** PSYC100, PSYC200, and PSYC300.
**Restriction:** Must be in Psychology program.
**Credit Only Granted for:** PSYC325, or PSYC425.

**PSYC426 Psychology of Adolescents' Close Relationships: Parents, Peers, and Romantic Partners (3 Credits)**
An examination of the development of close relationships during adolescence, including those with parents, peers, and romantic partners. We consider core developmental themes including nature and nurture, stability and change, and individual differences, and discuss theory, research, and clinical applications. Students gain observational skills through discussing extensive video examples of social interactions.
**Prerequisite:** PSYC355; or permission of the instructor.
**Credit Only Granted for:** PSYC426 or PSYC489B.
**Formerly:** PSYC489B.

**PSYC431 Human and Animal Intelligence (3 Credits)**
The study of intelligence touches upon a broad range of topics from cognition, animal behavior, philosophy, psychology, and linguistics. Through lectures, discussions, and critical evaluation of opposing arguments, we will investigate the construct of intelligence from an evolutionary perspective. An understanding of animal intelligence also has important applications for understanding cognition in general, the design of robotic controls, investigating human health, conserving endangered species, development of artificial intelligence, and assuring animal welfare.
**Prerequisite:** PSYC300.
**Credit Only Granted for:** PSYC431 or PSYC489R.
**Formerly:** PSYC489R.

**PSYC432 Counseling Psychology: Theories, Research, and Practice (3 Credits)**
Analysis of research and intervention strategies developed and used by counseling psychologists. Historical and current trends in content and methodology.
**Prerequisite:** PSYC200.

**PSYC433 Basic Helping Skills: Research and Practice (4 Credits)**
Theories and research regarding effective helping relationships, with a focus on applications to counseling and psychotherapy. Students will practice helping skills with each other and will conduct research projects evaluating their helping skills. Students should be willing to talk about personal issues in class. Attendance in labs is mandatory and contributes to the course grade; thus, students should only enroll in a lab section that they will be able to attend consistently.
**Prerequisite:** PSYC300.
**Restriction:** Must be in Psychology program; and must have earned a minimum of 85 credits; and must not have completed or be concurrently enrolled in EDCP 310.
**Credit Only Granted for:** EDCP210, EDCP310, or PSYC433.

**PSYC435 Temperament, Personality, and Psychopathology (3 Credits)**
An advanced review of cutting-edge research in humans and animals aimed at understanding the psychological and biological mechanisms underlying stable individual differences in temperament and personality (T&P) and determining their role in adult and child psychopathology, with a major focus on anxiety disorders, depression, and addiction. We will discuss the developmental origins of T&P, measurement issues, fundamental dimensions, heritability, relevance to psychopathology and intervention (treatment and prevention), and broader implications for public policy.
**Prerequisite:** PSYC200.

**PSYC436 Introduction to Clinical Psychology: From Science to Practice (3 Credits)**
Critical analysis of clinical psychology, with particular emphasis on current developments and trends.
**Prerequisite:** PSYC300.

**PSYC437 The Assessment and Treatment of Addictive Behaviors (3 Credits)**
Explores the current research in assessment and treatment of addictive behaviors. Topics may include addictions in the areas of alcohol, drugs, nicotine, gambling, and eating.
**Prerequisite:** PSYC100; and 9 credits in PSYC courses.

**PSYC438 Special Topics in Study Abroad IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**PSYC440 Experimental Psychology: Cognitive Processes and Legal Applications (4 Credits)**
A survey of the content, models, and methods in cognitive psychology with an emphasis on attention and encoding, recall, recognition, judgment, signal detection theory, and applying cognitive theories to situations in the legal system. Students integrate scientific theories with real-life legal situations. Course topics include research methodology in assessing and addressing cognitive mechanisms and how this understanding may help eyewitness and victim recall and recognition, perpetrator recall, assessing scientific theories of repression, and real life examples.
**Prerequisite:** PSYC100, PSYC200, PSYC300 and PSYC341.
**Restriction:** Must be in Psychology program; and must have earned a minimum of 85 credits.

**PSYC442 Psychology of Language (3 Credits)**
Introductory survey of the psychology of language, focusing on the cognitive processes that enable us to produce and understand language. Topics include speech perception, speech production, syntactic processing, language development, language disorders, and the brain bases of language.
**Prerequisite:** PSYC300 and PSYC341.
**Restriction:** Must be in Psychology program.

**PSYC447 Diversity in Organizations (3 Credits)**
Overview and active discussion of issues related to diversity and discrimination in organizations from several different perspectives, including: the person(s) being stigmatized, the person(s) doing the stigmatizing, the bystander(s) witnessing stigmatization of others, and the organization. Course readings address each of these perspectives, along with an introductory unit that outlines key concepts of diversity.
**Prerequisite:** PSYC300.
**Credit Only Granted for:** PSYC489E or PSYC447.
**Formerly:** PSYC489E.

**PSYC450 Applying Psychology to the Workplace: Industrial Organizational Psychology Laboratory (4 Credits)**
In this laboratory course, students use data analytic techniques, along with psychology theories and principles, to solve problems and provide recommendations to mock organizations. Along with learning theories in industrial-organizational psychology and statistical analysis, students will improve personal presentation skills that promote effective communication of information.
**Prerequisite:** PSYC300.

**PSYC460 Psychological Foundations of Personnel Selection and Training (3 Credits)**
An examination of issues and processes involved in the design and evaluation of personnel selection and training programs in a variety of organizational settings: job, person and organizational analysis; organizational choice; development of predictors; evaluation of instructional and training systems; criteria for performance evaluation, promotion and training.
**Prerequisite:** PSYC361 and PSYC200.

**PSYC464 Psychology of Leaders in Work Organizations (3 Credits)**
The psychological assumptions and implications of various theories of management and leadership. Selections and training; development of careers; influence processes; change of managerial behavior; and the impact of the larger environment, nature of product or service, and organization structure on managerial behavior.
**Prerequisite:** PSYC200 and PSYC361.

**PSYC468 Field Experience and Special Assignments in Honors (1-3 Credits)**
An individual experience arranged by the honors student and his or her supervisor. A proposal submitted to the honors faculty in the semester preceding registration for the course should state the activities anticipated and the method of evaluation.
**Prerequisite:** Must have permission of supervisor and honors faculty.
**Restriction:** Permission of BSOS-Psychology department.
**Repeatable to:** 6 credits.

**PSYC469 Honors Thesis Proposal Preparation (3 Credits)**
Development of honors thesis proposal by preliminary research and literature review. Presentation of formal proposal to the thesis committee.
**Restriction:** Permission of BSOS-Psychology department.
**Repeatable to:** 3 credits.

**PSYC478 Independent Study in Psychology (1-3 Credits)**
**Restriction:** Permission of BSOS-Psychology department; and must have earned a minimum of 9 credits in Psychology; and must have earned a minimum GPA of 3.0 in Psychology; and minimum cumulative GPA of 2.8.
**Repeatable to:** 9 credits.

**PSYC479 Special Research Problems in Psychology (1-3 Credits)**
**Restriction:** Permission of BSOS-Psychology department; and must have earned a minimum of 9 credits in Psychology; and must have earned a minimum GPA of 3.0 in Psychology; and minimum cumulative GPA of 2.8.
**Repeatable to:** 9 credits.

**PSYC488 Advanced Psychology I (Honors) (3 Credits)**
Seminar covering topics in sensation, perception, learning, and motivation.
**Prerequisite:** PSYC200.
**Restriction:** Permission of BSOS-Psychology department.

**PSYC489 Advanced Special Topics in Psychology (3 Credits)**
Treatment of a specialized topic in psychology.
**Prerequisite:** PSYC300.
**Repeatable to:** 9 credits if content differs.

**PSYC498 Advanced Psychology II (Honors) (1 Credit)**
Seminar covering topics of current interest in psychology.
**Prerequisite:** Permission of BSOS-Psychology department.
**Repeatable to:** 3 credits.

**PSYC499 Honors Thesis Research (3 Credits)**
**Prerequisite:** PSYC469; and must have permission of thesis advisor.

# RDEV - Real Estate Development

**RDEV250 People, Planet, and Profit: Building Sustainable Places (3 Credits)**
An introduction to the four disciplines represented in the School: architecture and urban design, community planning, historic preservation, and real estate development, that work to create a more sustainable environment for the future to create a more sustainable environment for the future using our interpretation of the quadruple bottom line: socio-cultural, economic, environmental, and design sustainability. Students will be provided with an understanding of the fundamental scholarship and processes of each of these disciplines and examine the intersections between them. Additionally, they will learn by applying the approaches of the four disciplines through a series of field studies.
**Cross-listed with:** ARCH271.
**Credit Only Granted for:** ARCH271 or RDEV250.

**RDEV270 Tax and Accounting for Real Estate Development (3 Credits)**
An understanding of key tax and accounting principles and how they impact real estate development for students in the minor in real estate development is the purpose of this course. This course is geared for science, arts and humanities students who otherwise in their major would not take an accounting course as part of their major.
**Restriction:** Permission of ARCH-Real Estate Development; and must not be in a major in the Robert H. Smith School of Business; and must not have completed BMGT210, BMGT220, or BMGT221.

**RDEV350 Real Estate Development: Introduction to Principles, Process, and Practice (3 Credits)**
An introduction to the basic principles of real estate development: How real estate and communities get built and how value is created. The emphasis is on entrepreneurship and an experiential learning approach to the entrepreneurial real estate development process, principles, and practice.
**Prerequisite:** RDEV250 or ARCH271.
**Restriction:** Must be in the Real Estate and the Built Environment major or the Real Estate Development minor; and permission of ARCH-School of Architecture, Planning, & Preservation.
**Credit Only Granted for:** RDEV150 or RDEV350.
**Formerly:** RDEV150.

**RDEV410 Legal Foundations of Real Estate (3 Credits)**
Provides students with the chance to explore various legal topics related to real estate, including government regulation, rights of property owners, financing real estate purchases, protections for certain classes of people, elements of a real estate contract, title, insurance, taxation, rights of landlords and tenants, premises liability, urban planning, land use regulation, and environmental issues.
**Prerequisite:** RDEV250 and RDEV350.
**Restriction:** Must be in the Real Estate and the Built Environment major; and permission of ARCH-Real Estate Development.

**RDEV415 Principles, Process and Politics of Planning for Real Estate Development (3 Credits)**
Designed to introduce and familiarize students with planning and zoning and the associated processes and requirements that impact the real property development process and products. It will look at the roles the community and politics play in shaping the built environment and the development process.
**Prerequisite:** RDEV250 and RDEV350.
**Restriction:** Permission of ARCH-Real Estate Development.

**RDEV445 Essentials of Architectural Design and Construction Management for Real Estate Professionals (3 Credits)**
Essential terminology, process and substantive knowledge needed by development professionals to effectively move a project through the design and construction process; includes environmental and ethical considerations throughout the process.
**Restriction:** Permission of ARCH-Real Estate Development.

**RDEV450 Foundations of Real Estate Finance and Investment (3 Credits)**
Real Estate Finance and Investment addresses how real estate value is established, the fundamental foundations of the time value of money, as well as more real estate specific applications of return on investment, net operating income, the components of a real estate sources and uses statement, sources of real estate equity and debt financing, commonly used debt ratios and equity returns in real estate, as well as concepts of sensitivity analysis and exit strategies.
**Prerequisite:** Must have completed RDEV270 or an approved accounting course with a grade of C- or better; and minimum grade of C- in RDEV350.
**Restriction:** Must be enrolled in RDEV Minor; and permission of ARCH-School of Architecture, Planning, & Preservation.

**RDEV473 Real Estate Case Study Competition (3 Credits)**
The Colvin Institute of Real Estate Development hosts a case study competition. The Colvin Case Study Challenge is a national intercollegiate real estate case study competition for full or part-time students enrolled in a college or a university real estate program (undergraduate or graduate or a university sanctioned real estate club/organization). The Challenge is to document a recent innovative real estate project within the team's metropolitan region. Unlike many other case competitions, this is a post-development report and documentation of a recently completed project (or project phase). The Challenge is designed to hone professional skills and reveal the knowledge base and understanding of markets, project valuation, finance, urban design and sustainability, entitlement processes and operational issues. This course prepares students to participate in the competition.
**Prerequisite:** RDEV250, RDEV350, and RDEV450.
**Restriction:** Must be in the Real Estate and the Built Environment major; and permission of ARCH-Real Estate Development.

**RDEV478 Special Topics in Real Property Development (1-3 Credits)**
RDEV 478 will address one or more current topics in real property with a focus in one or more of the areas of real estate development from planning and entitlements, to design and construction, to market analysis and valuation, to finance and investment, to operations and property management, or social and economic impacts.
**Recommended:** RDEV250, RDEV350, and RDEV450.
**Restriction:** Permission of ARCH-School of Architecture, Planning, & Preservation.
**Repeatable to:** 6 credits if content differs.

# RELS - Religious Studies

**RELS120 Islamic Civilization (3 Credits)**
Introduction to society and culture in the Middle East since the advent of Islam: as a personal and communal faith; as artistic and literary highlights of intellectual and cultural life; and as the interplay between politics and religion under the major Islamic regimes.
**Cross-listed with:** HIST120.
**Credit Only Granted for:** HIST120 or RELS120.

**RELS133 God Wills It! The Crusades in Medieval and Modern Perspectives (3 Credits)**
An examination of the identities and convictions both of the Western Europeans who participated in the Crusades and of the Easterners (Muslim, Christian, and Jewish) whom they encountered in the Holy Land. Focuses on the era of the first four great Crusades, from about 1095 to 1215. Consideration of the cultural impact of these movements on both Western Europe and the Middle East.
**Cross-listed with:** HIST133.
**Credit Only Granted for:** HIST133, RELS133 or RELS289D.
**Formerly:** RELS289D.

**RELS170 Ancient Myths and Modern Lives (3 Credits)**
What are myths and why do we tell them? What powers do myths have? We will tackle these questions by looking at the enduring and fascinating myths from ancient Greece and Rome. In addition to studying how they shaped ancient societies, we will also look at their modern influence and reflect upon the power that myths still hold in our contemporary world. Taught in English.
**Cross-listed with:** CLAS170.
**Credit Only Granted for:** CLAS170 or RELS170.
**Additional Information:** This course cannot be taken for language credit.

**RELS171 Is Judaism a Religion? (3 Credits)**
Jewish identity can be framed in terms of ethnicity, culture, and religious practice, but also in terms of more contemporary social constructions including social action, political engagement, and intellectual pursuit. In the context of such diverse social and individual frames, what does it mean to identify Judaism as a religion? Attention to Jewish society in historical and global perspective will provide a backdrop for a particular focus on contemporary Jews in the United States and Israel.
**Cross-listed with:** JWST171.
**Credit Only Granted for:** JWST171 or RELS171.

**RELS219 Special Topics in Religious Studies (3 Credits)**
Special topics in Religious Studies
**Repeatable to:** 9 credits if content differs.

**RELS219K Reformers, Radicals, and Revolutionaries: The Middle East in the Twentieth Century (3 Credits)**
The 20th century was a period of dramatic changes in the Middle East. Within the global context of the two World Wars and the Cold War, countries in the region struggled with the effects of colonialism and painful processes of decolonization. The course offers a thematic-comparative approach to issues such as social and political reform, nationalism, the colonial experience, independence struggles, models of governance, political violence, and Islamism. Course lectures and the analysis and discussion of primary sources will lead students to understand that the peoples of the Middle East found answers to the challenges posed by Western dominance based on their specific historical, cultural and socio-economic circumstances.
**Cross-listed with:** HIST245.
**Credit Only Granted for:** RELS219K or HIST245.

**RELS225 Religions of the Ancient Near East (3 Credits)**
Introduction to ancient Near Eastern religious systems and mythology, from the third millennium BCE through the fourth century BCE. Particular emphasis on Mesopotamia and ancient Israel.
**Cross-listed with:** HIST219I, JWST225.
**Credit Only Granted for:** JWST225, HIST219I, RELS225, or RELS219A.
**Formerly:** RELS219A.

**RELS230 Inventing Traditions: The Making of Rabbinic Judaism (3 Credits)**
Introduces the dramatic literary and cultural (as well as political and demographic) innovations that reshaped Judaism in late antiquity. Examines the fundamental works and genres of rabbinic literature and the religious movement that produced them. Special emphasis on the rabbinic uses of "tradition" to enhance authority and legitimacy, and to foster group identity.
**Cross-listed with:** HIST281, JWST230.
**Credit Only Granted for:** HIST281, JWST230, RELS219C or RELS230.
**Formerly:** RELS219C.

**RELS236 Philosophy of Religion (3 Credits)**
A philosophical study of some of the main problems of religious thought: the nature of religious experience, the justification of religious belief, the conflicting claims of religion and science, and the relation between religion and morality.
**Cross-listed with:** PHIL236.
**Credit Only Granted for:** PHIL236 or RELS236.

**RELS250 Fundamental Concepts of Judaism (3 Credits)**
A conceptional introduction to Judaism, analyzing its fundamental concepts from both analytical and historical perspectives. Discussion of "normative" Judaism as well as other conceptions of Judaism. Topics include: God, the Jewish people, authority, ethics, the sacred and the profane, particularism and universalism.
**Cross-listed with:** JWST250, PHIL234.
**Credit Only Granted for:** JWST250, PHIL234, or RELS250.

**RELS264 Introduction to the New Testament (3 Credits)**
A historical and literary introduction to the New Testament focusing on the context of the authors and the development of earliest Christianity.

**RELS269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**RELS271 What is Religion? (3 Credits)**
Draws upon examples from a wide variety of religious traditions to explore the question of what religion is and how to best understand it. Engagement with diverse approaches to religion including phenomenology and the study of "the sacred"; sociology and the study of religious communities; and questions of religious experience, ritual, and identity formation.
**Credit Only Granted for:** RELS289I or RELS271.
**Formerly:** RELS289I.

**RELS273 Jesus, Mani, and Muhammad: The Dynamics of New Religious Movements (3 Credits)**
We examine three significant ancient religious figures: Jesus (d. 30s CE), Mani (d. 276 CE), and Muhammad (d. 632). All three were founders of long-lasting religions that were part of a dramatic change in the society and religion of the ancient world. Special areas of focus: the biographies of these founding figures, and how we know them; a historical approach to religious founders; and the sociology of new religious movements.
**Cross-listed with:** HIST289T.
**Credit Only Granted for:** RELS273 or RELS289M or HIST289T.
**Formerly:** RELS289M.

**RELS274 Jerusalem in Antiquity: The History of Sacred Space in a Holy City (3 Credits)**
Examines the complex history of Jerusalem's status as a holy city, with a focus on constructions of sacred space in Judaism, Christianity, and Islam.
**Cross-listed with:** JWST274.
**Credit Only Granted for:** JWST274, RELS274, JWST289J or RELS289J.
**Formerly:** JWST289J, RELS289J.

**RELS289 New Explorations in Religious Studies (3 Credits)**
Investigation of critical and innovative responses in Religious Studies. Although the topic will vary, the course will encourage intellectual exploration by students of fundamental problems and critical methods.

**RELS289C Jews, Christians, and Muslims in Medieval Spain: Tolerance, Oppression, and the Problematic Past (3 Credits)**
For 800 years, medieval Spain was home to one of the most religiously diverse societies in European history. Despite frequent hostilities, the interactions of Spanish Jews, Christians, and Muslims produced a flowering of science, theology, and literature in an often remarkably tolerant climate. Students will learn how medieval Spanish people themselves experienced interreligious contact and conflict. They will also discover the modern pressures, prejudices, and ideals that have shaped historians interpretations of medieval Spain.
**Cross-listed with:** HIST289A.
**Credit Only Granted for:** HIST289A or RELS289C.

**RELS319 Special Topics in Religious Studies (1-3 Credits)**
Special topics in the study of religious history, literature, culture, and thought.
**Repeatable to:** 6 credits if content differs.

**RELS340 Europe in the Making: The Early Medieval West (A.D. 300-1000) (3 Credits)**
From one empire to another: Rome to Charlemagne. This period is approached as a crucible in which classical, Christian, and Germanic elements merged, yielding new experimental syntheses. This course will deal with issues of authority, cultural trends, and the formation of group solidarity.
**Cross-listed with:** HIST330.
**Credit Only Granted for:** HIST330 or RELS340.

**RELS341 Europe in the High Middle Ages: 1000-1500 (3 Credits)**
Medieval civilization in the 11th through 15th centuries. Emphasis on cultural and political developments of the high Middle Ages with study of the principal sources of medieval thought and learning, art and architecture, and political theory prior to the Renaissance.
**Cross-listed with:** HIST331.
**Credit Only Granted for:** HIST331 or RELS341.

**RELS342 Renaissance Europe (3 Credits)**
Intellectual developments in Italy and Northern Europe from 1300 to 1550 and their influence on the arts and religion; social and economic trends, including the rise of the commercial economy in cities; the family and the role of women in society; expansion of Europe overseas and the beginnings of colonization; emergence of the state and consequent changes in political theory.
**Cross-listed with:** HIST332.
**Credit Only Granted for:** HIST332 or RELS342.

**RELS343 The European Reformations (3 Credits)**
Examination of developments in European religion between 1450 and 1700; the late-medieval Church and its critics; rise of Protestant thought in Germany and its spread throughout Europe; reform efforts in the Catholic Church; religious wars and violence and their impact on state and society; consequences of religious reform in society and its impact on the family and women.
**Cross-listed with:** HIST333.
**Credit Only Granted for:** HIST333 or RELS343.

**RELS346 History of Religion in America (3 Credits)**
A history of religion, religious movements, and churches in America from the early Colonial period to the present, with special attention to the relation between church and society.
**Cross-listed with:** HIST306.
**Credit Only Granted for:** HIST306 or RELS346.

**RELS347 Tradition and Change: Jewish Religion in the Modern World (3 Credits)**
An exploration of the history of the different modern Jewish religious movements that developed in Europe, starting with messianic movements and ending with Reform and Orthodoxy. Emphasis will be placed on the influence of the academic study of Judaism on the development of modern Jewish religious ideologies and practices.
**Cross-listed with:** JWST347, HIST429X.
**Credit Only Granted for:** RELS347, JWST347, HIST429X, or RELS419R.
**Formerly:** RELS419R.

**RELS369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**RELS370 Ancient Greek Religion: Gods, Myths, Temples (3 Credits)**
Survey of Greek religious ideas and practices as they evolve from the Bronze Age to the early Christian period.
**Cross-listed with:** CLAS330.
**Credit Only Granted for:** CLAS330 or RELS370.

**RELS408 Capstone Seminar for Religions of the Ancient Middle East (3 Credits)**
A capstone seminar for majors in Religions of the Ancient Middle East, designed to provide the intellectual framework for a substantial, interdisciplinary research project. Course topics will be thematic and students will be encouraged to explore comparative or interdisciplinary approaches.
**Repeatable to:** 6 credits if content differs.

**RELS419 Advanced Topics in Religious Studies (3 Credits)**
The contemporary study of religion in which topics may address specific religious traditions, regional or historical developments, or methodological and theoretical issues.
**Recommended:** RELS216.
**Repeatable to:** 9 credits if content differs.

**RELS429 Advanced Topics in Religious History (3 Credits)**
Advanced study of religious history in a particular setting, with attention to particular themes, texts, events, or communities.
**Recommended:** RELS216 or RELS289.
**Repeatable to:** 9 credits if content differs.

**RELS430 Dead Sea Scrolls (3 Credits)**
A study of the Dead Sea Scrolls in their ancient and modern settings, and in terms of contemporary scholarly interpretations of their meaning. Interpretations of the historical significance of these documents, their connections to ancient Jewish sectarian movements, and their implications for our understanding of Judaism, Christianity, and the history of the Bible.
**Prerequisite:** Must have completed one JWST course or one RELS course; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Cross-listed with JWST430.
**Credit Only Granted for:** JWST430 or RELS430.

**RELS439 Advanced Topics in Religious Thought (3 Credits)**
Advanced study of religious thought in a particular setting, with attention to particular themes, texts, events, or communities.
**Recommended:** RELS216 or RELS289.
**Repeatable to:** 9 credits if content differs.

**RELS488 Honors Thesis Research in Religions of the Ancient Middle East (3 Credits)**
Guided research on a thesis under the supervision of a faculty mentor.
**Repeatable to:** 6 credits if content differs.

**RELS499 Independent Study in Religious Studies (1-3 Credits)**
An advanced independent research project for qualified students, supervised by a faculty member, on a topic not ordinarily covered in available courses.
**Prerequisite:** Permission of ARHU-Meyerhoff Program & Center for Jewish Studies.
**Repeatable to:** 6 credits if content differs.

# RUSS - Russian

**RUSS101 Intensive Elementary Russian I (6 Credits)**
This intensive first-year course is intended to develop the four skills: reading, writing, listening and speaking with an emphasis on communicative competence.
**Prerequisite:** Must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Must not be a native/fluent speaker of Russian.
**Credit Only Granted for:** RUSS101 or (RUSS111 and RUSS112).

**RUSS102 Intensive Elementary Russian II (6 Credits)**
A continuation of RUSS101 which will further develop the four skills: reading, writing, listening and speaking with an emphasis on communicative competence.
**Prerequisite:** RUSS101 or RUSS102; and must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Must not be a native/fluent speaker of Russian.
**Credit Only Granted for:** RUSS102 or (RUSS113 and RUSS114).

**RUSS201 Intermediate Russian I (5 Credits)**
Continued activation and expansion of skills and knowledge acquired in an elementary Russian course with the goal of communicative competence.
**Prerequisite:** RUSS102 or RUSS114; or must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Must not be a native/fluent speaker of Russian.

**RUSS202 Intermediate Russian II (5 Credits)**
Continued activation and expansion of skills and knowledge acquired in RUSS201 with the goal of communicative competence.
**Prerequisite:** RUSS201; or must have appropriate World Language Placement Test (WLPT) score.
**Restriction:** Must not be a native/fluent speaker of Russian.

**RUSS211 Applied Russian Phonetics (3 Credits)**
Pronunciation; the sounds and intonational patterns of Russian in contrast with those of English.
**Prerequisite:** RUSS102.
**Restriction:** Must not be a native/fluent speaker of Russian.

**RUSS223 Dostoevsky and The Russian Soul (3 Credits)**
Dostoevsky's exploration of the dark side of the psyche shaped a mythological image of the Russian soul. An examination of his selected works in light of development of psychoanalysis and Russian and European intellectual history. Taught in English.

**RUSS269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**RUSS281 Russian Language and Pre-Revolutionary Culture (3 Credits)**
Introduction to the Russian language and a study of Russian nationalism; artistic and social concepts in the development of Russian art, dance, geography, history and literature from the 18th to the 20th centuries. Lectures in English, with third hour devoted to basic language instruction (alphabet, vocabulary, pronunciation and minimal conversational skills).
**Restriction:** Must not be a native/fluent speaker of Russian.

**RUSS287 The Power of the Word: Freedom of Speech in the U.S. and Russia (3 Credits)**
The central theme is the abiding human propensity to ask questions, to use language to pursue inquiry. To be a "critical thinker," one must develop the habit and discipline of asking questions and challenging assumptions. Through a comparative approach to the US and Russian experiences, we will explore the role of language and its power in different political and social systems. We will explore such questions as: Why is free speech so fiercely defended in a democracy and such a threat to totalitarianism? What is the relationship between free speech, political power and dissent? Is the pen still mightier than the sword, even in the nuclear age? What has shaped our current attitudes toward freedom of expression? How has the concept of political free speech been extended to include freedom of expression in general, such as in the creative arts? What role do new technologies play in the arena of free speech debates? We will explore how freedom of speech and expression has been defended or its suppression justified in the US and Russia. We will practice the art of questioning and constructing counter-arguments throughout the course.
**Credit Only Granted for:** RUSS287 or RUSS289I.
**Formerly:** RUSS289I.
**Additional Information:** Taught in English.

**RUSS298 Special Topics in Russian Language and Literature (3 Credits)**
**Repeatable to:** 6 credits if content differs.

**RUSS301 Advanced Russian I (3 Credits)**
Advanced training in written Russian communicative structures.
**Prerequisite:** RUSS202; or students who have taken courses with comparable content may contact the department.
**Restriction:** Must not be a native/fluent speaker of Russian.

**RUSS302 Advanced Russian II (3 Credits)**
Advanced training in written Russian communicative structures.
**Prerequisite:** RUSS301.

**RUSS303 Russian Conversation: Functional Skills (3 Credits)**
Intended for students who do not anticipate having the opportunity to study in Russia. Skills for daily life (both function and etiquette) and argumentation (rhetoric).
**Prerequisite:** RUSS202; or students who have taken courses with comparable content may contact the department.

**RUSS321 Survey of Russian Literature I (3 Credits)**
The first half of a survey of Russian literature.
**Prerequisite:** RUSS202; or students who have taken courses with comparable content may contact the department.

**RUSS328 19th Century Russian Literature in Translation (3 Credits)**
Development of Russian literary thought in the Russian novel and short prose of the 19th century. Influence of western literatures and philosophies.
**Repeatable to:** 6 credits if content differs.

**RUSS329 Soviet Literature in Translation (3 Credits)**
Russian literature between 1917 and the fall of the Soviet Union, both as a continuation of pre-revolutionary traditions and as a reflection of Soviet ideology.
**Repeatable to:** 6 credits if content differs.

**RUSS334 Soviet Film: Propaganda, Myth, Modernism (3 Credits)**
A Survey of Soviet film from the 1920s to 1991, focusing on important directors, genres, themes, and styles. Taught in English.
**Cross-listed with:** CINE334.
**Credit Only Granted for:** RUSS334, CINE334, or FILM334.
**Formerly:** FILM334.

**RUSS336 Soviet Cinema and Empire (3 Credits)**
Examination of the concepts of "empire" and "nation" through their representation in Soviet cinema. Taught in English.
**Cross-listed with:** CINE336.
**Credit Only Granted for:** RUSS336, CINE336, or FILM336.
**Formerly:** FILM336.

**RUSS361 Dostoevsky's Life and Works (3 Credits)**
A study of Dostoevsky's major works with reference to related developments in Russian and European culture, literary criticism, and intellectual history. Interdisciplinary investigation of Dostoevsky's contemporary relevance and tremendous international popularity.

**RUSS369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**RUSS386 Experiential Learning (3-6 Credits)**
**Restriction:** Junior standing or higher; and permission of ARHU-School of Languages, Literatures, and Cultures department.

**RUSS388 Language House Spring Colloquium (1 Credit)**
For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.
**Restriction:** Must be a resident of Language House.
**Repeatable to:** 8 credits.

**RUSS398 Selected Topics in Russian Language and Literature (3 Credits)**
**Repeatable to:** 6 credits if content differs.

**RUSS401 Advanced Russian Composition (3 Credits)**
Approaches to argumentation, organization of information, contextualized grammar, appropriateness of lexical choice, genre, and register.
**Prerequisite:** RUSS302; or students who have taken courses with comparable content may contact the department.
**Restriction:** Not open to native speakers of Russian.

**RUSS402 Practicum in Written Russian (3 Credits)**
Designed to improve comprehension of functional varieties of written Russian and develop ability to present in written form concise syntheses of source texts.
**Prerequisite:** RUSS401; or students who have taken courses with comparable content may contact the department.

**RUSS403 Russian Conversation: Advanced Skills (3 Credits)**
Advanced spoken production of high-level, abstract language.
**Prerequisite:** RUSS303; or students who have taken courses with comparable content may contact the department.

**RUSS404 Practicum in Spoken Russian (3 Credits)**
To improve comprehension of rapidly spoken Russian of various functional styles and to develop ability to synthesize orally the content of spoken material.
**Prerequisite:** RUSS403; or students who have taken courses with comparable content may contact the department.

**RUSS405 Russian-English Translation I (3 Credits)**
Introduction to the principles of translation of a particular genre, and is typically diplomatic, business, or literary.
**Prerequisite:** Must have completed or be concurrently enrolled in RUSS302.

**RUSS409 Selected Topics in Russian Language Study (3 Credits)**
Presentation of a topic in Russian language study.
**Restriction:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 6 credits if content differs.

**RUSS411 Linguistic Analysis of Russian I (3 Credits)**
Elucidation of theoretical concepts of modern linguistics through the analysis of problematic concepts in the Russian linguistic system. Phonology and the syntax of the simple sentence.
**Prerequisite:** Must have completed or be concurrently enrolled in RUSS301.

**RUSS439 Selected Topics in Russian Literature (3 Credits)**
Presentation of a topic in Russian literature.
**Restriction:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 6 credits if content differs.

**RUSS499 Independent Study in Russian (1-3 Credits)**
Independent study under faculty supervision.
**Prerequisite:** Permission of instructor.
**Repeatable to:** 6 credits if content differs.

# SLAA - Second Language Acquisition and Application

**SLAA269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**SLAA369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**SLAA410 Second Language Acquisition: Theory, Research, and Practice (3 Credits)**
Introduces vibrant and expanding branch of language science and cognitive science: theory, research and practice in SLA. Students apply what they learn to practical issues ranging from learning languages as an adult to societal problems involving second languages and dialects.
**Prerequisite:** LING200, LING240, PSYC200, PSYC221, or PSYC354.

**SLAA498 Second Language Research and Practicum (1-3 Credits)**
Individualized research and practicum for undergraduate students to work as Undergraduate Research Assistants (UGRA) on existing projects under the supervision of a PhD Graduate Supervisor (GS) in the area of second language acquisition to learn/experience how second language as well as psycholinguistic research is conducted.
**Restriction:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 9 credits if content differs.
**Additional Information:** UGRAs register for 1-3 credits. A specific weekly schedule will be determined at the beginning of the semester. Throughout the semester, students will meet with the Graduate Supervisor (GS) once per week to discuss the theoretical and methodological background of the project as well as the broader area behind the research. In addition to the training in theoretical background, the first several weeks of the semester will be devoted to hands-on details of running subjects using a particular method and analyzing data. When this training is complete, UGRAs will work more independently to schedule and run research projects and process the data.

# SLLC - School of Languages, Literatures and Cultures

**SLLC108 Beg Less Commonly Taught Language I (3-6 Credits)**
Study of any of the less commonly taught languages at the elementary level. Speaking, listening, reading, and writing a less commonly taught language. Development of an emphasis on oral proficiency skills.
**Restriction:** Not open to native speakers of the language being taught. Heritage speakers must contact the instructor at the host institution to determine proper placement.
**Repeatable to:** 12 credits if content differs.
**Additional Information:** Course is offered remotely via a member institution of the CIC CourseShare arrangement. Instruction may be delivered synchronously or asynchronously. Students register through University of Maryland, and course appears on transcript as a UMd course. No additional fees are associated with this course.

**SLLC109 Beg Less Commonly Taught Language II (3-6 Credits)**
Study of any of the less commonly taught languages at the elementary level, as a continuation of SLLC108 (in the same language). Speaking, listening, reading, and writing a less commonly taught language. Development of an emphasis on oral proficiency skills.
**Restriction:** Not open to native speakers of the language being taught. Heritage speakers, or those with previous experience in the language, must contact the instructor at the host institution to determine proper placement.
**Repeatable to:** 12 credits if content differs.
**Additional Information:** Course is offered remotely via a member institution of the CIC CourseShare arrangement. Instruction may be delivered synchronously or asynchronously. Students register through University of Maryland, and course appears on transcript as a UMd course. No additional fees are associated with this course.

**SLLC169 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**SLLC199 Special Topics in Language Study (1-3 Credits)**
Language and topic to be announced when offered.
**Repeatable to:** 6 credits if content differs.

**SLLC208 Intermediate Less Commonly Taught Language I (3-6 Credits)**
Intermediate-level work on speaking, reading, and writing a less commonly taught language. Continued development of oral proficiency skills.
**Prerequisite:** SLLC109; or must have permission of instructor after placement assessment.
**Restriction:** Not open to fluent/native speakers. Heritage speakers or students with prior knowledge of the language must contact the instructor at the host institution to determine proper placement before enrolling.
**Repeatable to:** 12 credits if content differs.
**Additional Information:** Course is offered remotely via a member institution of the CIC CourseShare arrangement. Instruction may be delivered synchronously or asynchronously. Students register through University of Maryland, and course appears on transcript as a UMd course. No additional fees are associated with this course.

**SLLC209 Intermediate Less Commonly Taught Language II (3-6 Credits)**
Second semester Intermediate-level work on speaking, reading, and writing a less commonly taught language. Continued development of oral proficiency skills.
**Prerequisite:** Must have completed SLLC208 or have permission of instructor, based on placement assessment.
**Restriction:** Not open to native speakers of the language being taught. Heritage speakers or students with prior knowledge of the language must contact the instructor at the host institution to determine proper placement before enrolling.
**Repeatable to:** 12 credits if content differs.
**Additional Information:** Course is offered remotely via a member institution of the CIC CourseShare arrangement. Instruction may be delivered synchronously or asynchronously. Students register through University of Maryland, and course appears on transcript as a UMd course. No additional fees are associated with this course.

**SLLC269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**SLLC280 Mythology of the Oppressed (3 Credits)**
Does information drive human history? Mythological recurrences say much about cultures that had to adapt their world views while attempting to preserve them. This course examines the cognitive or social bases of mythology, to be pursued from insights in cultural and literary studies, linguistics, the cognitive sciences, paleo-anthropology, archeology, etc. The course is designed to help students think about complex problems from a humanistic perspective, making liberal use of the sciences.
**Credit Only Granted for:** SLLC280 or SLLC299J.
**Formerly:** SLLC299J.

**SLLC284 Language, Power and Society (3 Credits)**
Introduction to language variation along social, ethnic and regional identity lines. Taught in English.

**SLLC286 Living the Good Life: Chinese Philosophy in the Modern World (3 Credits)**
Confucius, Mencius, Zhuangzi and other Chinese thinkers who lived more than 2,000 years ago would argue that the contemporary Western emphasis on self-discovery (Find yourself) and self-acceptance has led you astray. See what they have to say and discuss what relevance it has for the modern world as we study how early Chinese thinkers wrestled with questions of existence, morality, and governance. No previous knowledge of Chinese philosophy and history will be assumed and no prerequisites are required. We will discuss ideas that are both historical and relevant to students' lives. What is "the Way"? How do we cultivate spontaneity? Is there a stable self? How can we be more alive? These are questions important for ancient kings but also for UMD students choosing a major, or wondering how ARHU can benefit them.
**Additional Information:** Taught in English.

**SLLC290 Behavior of the Rich and Powerful, Past and Present (3 Credits)**
Through the study of fifteenth- and sixteenth-century courtesy literature, in this course we explore the various forms of behavior of the rich and powerful of the Italian Renaissance, an era that is much closer to our contemporary world than we might initially think, especially in regard to the way political and influential figures act in social situations and the image of themselves they present to others. What can we learn from observing and comparing the behavior of the rich and powerful of the past and present? In the public arena of these two worlds, does appearance matter more than truth?
**Restriction:** Must be in the Freshmen Connection program.
**Credit Only Granted for:** SLLC290 OR SLLC299P.
**Formerly:** SLLC299P.
**Additional Information:** Taught in English.

**SLLC299 Special Topics in World Cultures (1-6 Credits)**
Topic to be announced when course is offered.
**Repeatable to:** 6 credits if content differs.

**SLLC305 Language, Identity and Diversity in the U.S. (3 Credits)**
Introduces issues of linguistic diversity in the framework of the U.S. as a multilingual society. Special emphasis is placed on attitudes toward language diversity, specifically, how regional, social, generational, ethnic, racial and gender differences in language use contribute to notions of identity.

**SLLC309 Language Partner Program (1 Credit)**
For intermediate- to advanced-level language study. Conversations entirely in target language with native speaker.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** For intermediate- to advanced-level language majors.
**Repeatable to:** 3 credits.

**SLLC342 Film Comedy (3 Credits)**
Comedy as a specific cinematic genre.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Cross-listed with:** CINE342.
**Credit Only Granted for:** SLLC342, CINE342, or FILM342.
**Formerly:** FILM342.

**SLLC344 Film and the Fantastic (3 Credits)**
Survey of fantastic cinema, encompassing American classics, Hollywood recent productions, and independent films, as well as Asian horror films, anime, and European fantasy.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Cross-listed with:** CINE344.
**Credit Only Granted for:** SLLC344, CINE344 or FILM344.
**Formerly:** FILM344.

**SLLC361 Cinema and Globalization (3 Credits)**
Introduction to cinema as a global phenomenon.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of Film Studies program; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Cross-listed with:** CINE361.
**Credit Only Granted for:** SLLC361, CINE361, or FILM361.
**Formerly:** FILM361.

**SLLC362 Vision, Visuality, and the Gaze in Cinema (3 Credits)**
Students will build a way of talking critically about film. The prism of seeing, visuality, the gaze, and the like will serve as a way to investigate the way films take on meaning as well as to understand how film participates in a wide network of interconnected ideas, concepts, and modes of thought that have contributed to the audiences' ability to make sense of what a film is conveying.
**Prerequisite:** ENGL245, FILM245 or CINE245; or permission of Film Studies Program; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Cross-listed with:** CINE362.
**Credit Only Granted for:** SLLC362, CINE362, or FILM362.
**Formerly:** FILM362.

**SLLC368 Special Topics in Film Studies I (3 Credits)**
Content varies. Exploration of topics in film studies beyond national traditions, for example through the lens of theory, genre, auteurship, aesthetic movements in cinema, and/or comparative perspectives.

**SLLC369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**SLLC386 Experiential Learning (3 Credits)**
**Prerequisite:** Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor and the student's internship sponsor.
**Restriction:** Junior standing or higher.

**SLLC400 Articulatory Phonetics for Second Language Acquisition and Application (3 Credits)**
The mechanical capabilities of the human vocal apparatus for producing speech sounds, and their terminology and transcription in the International Phonetic Alphabet. Emphasis is on the practical needs of the teacher and student of foreign language, rather than the theoretical linguist or the hearing-and-speech pathologist. The phonetics of major languages are also introduced, with attention to the pedagogy of their phonetics.
**Restriction:** Junior standing or higher.
**Credit Only Granted for:** SLLC400.

**SLLC410 Documentary and Narrative (3 Credits)**
An examination of the relationship between film and reality, focusing on documentary film.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Cross-listed with:** CINE410.
**Credit Only Granted for:** SLLC410, CINE410 or FILM410.
**Formerly:** FILM410.

**SLLC411 Experimental Film (3 Credits)**
Introductory survey of European and U.S. American experimental cinema.
**Cross-listed with:** CINE411.
**Credit Only Granted for:** SLLC411, CINE411 or FILM411.
**Formerly:** FILM411.

**SLLC461 Political Cinema (3 Credits)**
Histories of cinema and politics in the 20th century.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of ARHU-School of Languages, Literatures, and Cultures department.
**Cross-listed with:** CINE461.
**Credit Only Granted for:** CINE461, FILM461 or SLLC461.
**Formerly:** FILM461.

**SLLC463 Screening Time: History and Memory in Cinema (3 Credits)**
An examination of the ways and techniques with which cinema produces a sense of time in the viewer.
**Prerequisite:** ENGL245, FILM245, or CINE245; or permission of ARHU-College of Arts & Humanities.
**Cross-listed with:** CINE463.
**Credit Only Granted for:** SLLC463, CINE463 or FILM463.
**Formerly:** FILM463.

**SLLC468 Special Topics in Film Studies II (3 Credits)**
Exploration of topics in film studies beyond national traditions, for example through the lens of theory, genre, auteurship, aesthetic movements in cinema, and/or comparative perspectives. Courses at the 400-level have higher expectations of independent work, including reading and written assignments.
**Repeatable to:** 12 credits if content differs.

**SLLC471 The Cultural Environment of Global Business (3 Credits)**
The goal of this course is to provide students with an understanding of cultural aspects pertaining to global business, and thereby increasing their awareness of the cultural factors that motivate decisions and behavior in the business world. Students will gain an understanding of how the business cultures in the rest of the world diverge from the American, and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.
**Restriction:** Sophomore standing or higher.
**Credit Only Granted for:** ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472, or SLLC473.
**Formerly:** ARHU439B.

**SLLC473 European Business Cultures (3 Credits)**
The goal of this course is to provide students with an understanding of cultural aspects pertaining to European business, and thereby increasing their awareness of the cultural factors that motivate decisions and behavior in the European business world. Students will gain an understanding of how the European business cultures diverge from the American, and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.
**Restriction:** Sophomore standing or higher.
**Credit Only Granted for:** ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472, or SLLC473.
**Formerly:** ARHU439E.

**SLLC499 Special Topics in World Cultures (3 Credits)**
Interdisciplinary, transnational or cross-language course; specific topic to be announced.
**Repeatable to:** 12 credits if content differs.

# SLLX - School of Languages, Literatures & Cultures Education Abroad

**SLLX101 Swedish Language and Culture: Level 1 (3 Credits)**
This course is an integrated language and culture course. When studying Swedish language, we will employ a functional approach. The course will focus on spoken everyday Swedish, reading comprehension and basic grammar. We will study different aspects of Swedish culture and we will operate with a complex view on culture through various representations. The focus will be on dominant national narratives, values, and symbolism, which we will approach from both a historical and contemporary perspective.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**SLLX102 Swedish Language and Culture: Levels 1 and 2 (6 Credits)**
This intensive course covers two semesters of Swedish language content in one, making it an excellent option for students who wish to advance quickly in their knowledge of the language. The emphasis is on speaking, writing, and understanding basic Swedish language. Swedish literature, film, and music are included in the curriculum. Politics, burning cultural issues, and your personal experiences form the cornerstone of class discussions.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**SLLX106 Elementary Italian II (4 Credits)**
Focuses on vocabulary expansion and strengthening the four language skills of speaking, listening, writing, and reading in order to provide students with the ability to converse on familiar social situations related to school, recreation, and particular interests. This course equips students to provide oral descriptions in the major time frames (past, present, and future), read short written texts, and write short compositions on familiar topics.
**Credit Only Granted for:** ITAL103 or SLLX106.
**Formerly:** ITAL103.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**SLLX200 Spanish Civilization and Culture (3 Credits)**
This course starts with an extensive view of the Spanish history and then examines the different cultures within Spain: Castilian, Catalan, Basque and Galician; focusing mainly on language, nationality, and political implications. The rest of the course will travel throughout the various aspects of the Spanish Civilization, understanding civilization as lifestyle and society, and also the various artistic ways of expression. Taught in English.
**Credit Only Granted for:** SLLC299Z or SLLX200.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**SLLX201 Swedish Language and Culture: Intermediate (3 Credits)**
This class is intended to improve your linguistic and communicative skills in Swedish on an intermediate level. It is an integrated language and culture course, and it gives you the opportunity to reflect upon and document intercultural competences gained while studying abroad at DIS. The course makes you develop a critical and analytical understanding of your own as well as of the Swedish culture, and it seeks to explore Swedish history, literature, film, art as well as the burning issues of today - enriching your experience and making you a qualified discussion partner for your Swedish family and friends.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**SLLX204 Italian Fashion (3 Credits)**
Examines the history of Italy's fashion industry in order to understand how it gained strength and importance in Italian culture. The course will analyze how fashion has been effective historically as a communication system that has represented the development of Italian national identity and in turn has had considerable impact on Italian society and culture. The course makes use of novels, periodicals and films from the late 19th century post-unification period to the present and will highlight the close connection between the massive presence of art in Italy and its influence on the development of a collective sense of aesthetics that finds confirmation in fashion.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**SLLX205 Italian Food and Culture (3 Credits)**
This interdisciplinary course focuses on the social and cultural aspects of food and eating in different geographical areas with a special emphasis on Italy and its history. The course will be taught through a variety of readings, class discussions and presentations and there will also be some practical experiences.
**Additional Information:** This course is offered as part of the Maryland-in-Rome study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMRome. Education Abroad processes registrations for this course on behalf of students.

**SLLX300 Italy Outside Italy: Italian Culture & Identity in Italy, America & the World (3 Credits)**
This course is an introduction to the history of Italian emigration and Italian communities around the world as well as to the trans-national culture and identity they developed. The focus will be on Italians in America, and on the Italian emigrants' point of view. We will discuss how they viewed themselves as emigrants (not immigrants), how they thought of their communities as "colonies" (not "Little Italies"), and how they faced prejudice and discrimination to finally integrate into the new country as Italian Americans.
**Credit Only Granted for:** ITAL369G, ITAX303, or SLLX300.
**Formerly:** ITAL369G.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

**SLLX301 Identity and Culture in Italy: A Comparative Approach (3 Credits)**
Introduces the concept of culture in the sociological and anthropological sense. After clarifying the meaning of the word 'culture', other related concepts will be analyzed: values, norms, lifestyles, attitudes, beliefs, stereotypes. Attention will also be drawn to the notion of social and cultural change (de-secularization, globalization, mediatization, individualization). Italian-ness will be compared with traits of the American, Northern European and Mediterranean cultural heritage.
**Credit Only Granted for:** ITAL369D, ITAX305, or SLLX301.
**Formerly:** ITAL369D.
**Additional Information:** This course is offered as part of the Maryland-in-Florence study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMFlorence. Education Abroad processes registrations for this course on behalf of students.

# SMLP - Southern Management Leadership Program

**SMLP470 Fundamentals of Entrepreneurial Ventures (3 Credits)**
Learn the processes and skills needed to launch and manage start-up ventures, including technology startups. Assess the feasibility of a startup ventures, as well as how to apply best practices for planning, launching, and managing new companies by using real-world examples and in-depth case studies. Discuss a wide range of issues of importance and concern to entrepreneurs and learn to recognize opportunity, assess the skills and talents of successful entrepreneurs, and learn models and approaches that help navigate uncertainty.
**Restriction:** Restricted to students in the Southern Management Leadership Program.
**Credit Only Granted for:** HLMN470, SMLP470, ENES460 or BMGT461.
**Formerly:** HLMN470.
**Additional Information:** SMLP470 may not count toward any BMGT major or minor degree.

**SMLP471 Entrepreneurial Finance (3 Credits)**
Examine the elements of entrepreneurial finance, develop and analyze financial statements, focusing on technology-based startup ventures and the early stages of company development. Address key questions that challenge all entrepreneurs: how much money can and should be raised; when it should be raised and from whom; how to define a reasonable valuation of a company; and how to structure funding, develop employment contracts, and make exit decisions. Analyze the variety of financing models across a venture's life cycle, with an aim to understanding the incentives of each type of investor and the relative costs and benefits of each source of funding.
**Restriction:** Restricted to students in the Southern Management Leadership Program.
**Credit Only Granted for:** HLMN471, SMLP471, ENES466 or BMGT365.
**Formerly:** HLMN471.
**Additional Information:** SMLP471 may not count toward any BMGT major or minor degree.

**SMLP472 Strategies for Innovation & Entrepreneurship (3 Credits)**
Understand the process of technological change; the ways that firms come up with innovations; the strategies that firms use to benefit from innovation; and how to create new value not only through new products or services, but with novel technologies, business concepts, organizing structures, transaction/financing mechanisms, distribution channels, and market segmentation. Challenge students to think about how to create value and build a productive business organization with available resources (e.g. intelligence, insight, energy, initiative and personal relationships).
**Restriction:** Restricted to students in the Southern Management Leadership Program.
**Credit Only Granted for:** HLMN472, SMLP472, BMGT467, or ENES463.
**Formerly:** HLMN472.
**Additional Information:** SMLP472 may not count toward any BMGT major or minor degree.

**SMLP473 Consulting in Tech Entrepreneurship (3 Credits)**
Apply the entrepreneurship/business principles learned in the classroom to real-world consulting projects. Gain practical experience by solving actual business situations and by dealing with ambiguity and uncertainty inherent in fast-moving technical organizations. Develop key skills in negotiation, group dynamics, organization, and planning.
**Restriction:** Restricted to students in the Southern Management Leadership Program.
**Credit Only Granted for:** HLMN473 or SMLP473.
**Formerly:** HLMN473.
**Additional Information:** HLMN473 may not count toward any BMGT major or minor degree.

**SMLP474 Essentials of Negotiations and Marketing for Entrepreneurs (3 Credits)**
Building on the innovation and entrepreneurship knowledge acquired in previous SMLP courses, this team-taught course will equip students with the experience to conduct successful negotiations and bring an innovation to market. In the first half of this course, you will learn more about your individual negotiation style and practice the skills and techniques essential to a successful negotiation. You will then apply some of those skills, along with the human-centered mindset cultivated in previous SMLP courses, to introduce an existing product to the marketplace by identifying the promotion, distribution, and pricing tactics that meet the preferences of the intended target market. The course will conclude with a live presentation of your comprehensive go-to-market strategy to a panel of real investors, followed by a mock negotiation for an investment in bringing that product to market.
**Restriction:** Must be in the Southern Management Leadership Program.

# SOCY - Sociology

**SOCY100 Introduction to Sociology (3 Credits)**
Introduces fundamental concepts and theories of sociology. Guided by C. Wright Mills' "sociological imagination," the course promotes critical thinking; challenges conventional assumptions about culture politics, history, and psychology; and equips students with theoretical approaches and research methods to analyze various sociological topics, including family, work, education, religion, social movements, and issues related to class, gender, race, and ethnic inequalities.

**SOCY105 Understanding Contemporary Social Problems - Frameworks for Critical Thinking and Strategies for Solutions (3 Credits)**
Embark on an exploration of contemporary social issues and unravel the intricate ways in which these challenges are woven into the fabric of society. Develop a comprehensive understanding of societal organization and partake in a detailed study of selected social problems, with a specific emphasis on issues like social conflict and inequality. This course provides an insightful journey into the nuanced interplay between societal structure and prevalent challenges, fostering a heightened awareness of the dynamics shaping our social landscape.

**SOCY110 The Logic of Social Inquiry: An Introduction to Sociology and the Major (3 Credits)**
Introduction to the logic of social science research; the integration of theory and methods in the development of sociological knowledge; basic sociological concepts; and departmental research streams. Required of all sociology majors.
**Additional Information:** To be taken prior to, or in the first 30 credits after declaring sociology as a major.

**SOCY120 Veterans in American Society: What does America Owe Its Veterans? (3 Credits)**
An examination of current and past policies toward compensation for military veterans, data and evidence on current and past adjustments to life after military service, historical variations in the mechanisms for staffing the military, and trends in the contours of the lives of those who do not serve.

**SOCY158 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**SOCY200 Innovation, Exploration and the Evolution of Human Societies (3 Credits)**
We will explore the nature of human societies through comparative, historical, and interdisciplinary perspectives. Students will delve into the core of social structures, unravel the defining components of society, and examine their organization, evolution, and impact on collective existence. Students will also explore the socio-historical forces and geopolitical dynamics that drive social change to analyze the complex connections that illuminate our shared social experience across time.

**SOCY201 Introductory Statistics for Sociology (4 Credits)**
Students will explore descriptive and inferential statistics. You will hone your quantitative analytical skills to construct impactful bivariate tables, craft frequency distributions, and decipher measures of central tendency and dispersion. Additionally, you will master the techniques of hypothesis testing, chi-square, ANOVA, and ordinary least squares regression, equipping you to seamlessly translate data into meaningful research insights.
**Prerequisite:** SOCY100; and (MATH107 or MATH111).
**Restriction:** Must not have completed STAT400, BMGT231, or ENEE324.

**SOCY202 Introduction to Research Methods in Sociology (4 Credits)**
We will examine why social research is needed, explore some of the main quantitative and qualitative techniques to conduct sociological research, and discover how to understand and critically evaluate sociological research on pressing social problems. Students will also learn to use specialized software to analyze and interpret quantitative data in the computer lab.
**Prerequisite:** SOCY100.

**SOCY203 Sociological Theory (3 Credits)**
Examines major trends in the history and development of sociological thought, including theories of inequality, the self, institutions, and more. With each theorist students will learn what sociologists assume and focus on when studying societies.
**Prerequisite:** SOCY100.

**SOCY211 The Sociology Major: Mapping the Road to Academic Success (1 Credit)**
Designed to assist students in making a successful transition to the major and will orient them to departmental, college, and university resources. Students will collaboratively explore avenues and best practices that build self-confidence and lead to academic achievement.
**Restriction:** Must be in the Sociology major (22080) or Sociology minor (#BS13).

**SOCY212 Hate Crimes in the U.S.: What Lt. Richard Collins III Can Teach Us About History, Hope and Healing (3 Credits)**
Rooted in the tragic murder of Lt. Richard W. Collins III, a Bowie State student, on the campus of the University of Maryland by a white supremacist student, this course will provide an overview and discussion of the history of bias-motivated violence in the United States, the development of modern hate crime laws, theories and impacts of victimization, domestic terrorism, legal and social responses, and prevention strategies. Students from both Bowie State University and the University of Maryland will engage with experts from multiple disciplines and work together in a collaborative community to generate actionable strategies.

**SOCY216 Social Aspects of Artificial Intelligence (3 Credits)**
In two generations computers insinuated themselves into the way societies create wealth, wage war, work, and govern their citizens. While scientists across disciplines debate the feasibility of engineering artificial general intelligence, the race is on to create computers (classic and quantum) that match or surpass human intelligence in as many domains as possible. Students in this course will weigh some social consequences of living with smart machines that are everywhere and never sleep, and confront the question of whether AI has gone too far, or not far enough.
**Credit Only Granted for:** SOCY216 or SOCY416.
**Formerly:** SOCY416.

**SOCY222 Immigration and Ethnicity in America (3 Credits)**
The history of immigration and the development of diverse populations in the United States are examined. Topics include related political controversies, the social experiences of immigrants, ethnicity, generations, migration, inter-group relations, race and diversity in American culture.
**Cross-listed with:** AAST222.
**Credit Only Granted for:** AAST222, HIST222, or SOCY222.

**SOCY224 Why are We Still Talking About Race? (3 Credits)**
Explore and discuss the major debates and assumptions that construct perceptions of race and how it matters. Sociological and social science theories will give students a historical and present day frame with which to view race and ethnic relations in the twenty-first century.

**SOCY225 Women's Jobs, Men's Jobs: How and Why Do They Differ? (3 Credits)**
An exploration of critical issues pertaining to gender differences in the workplace. Overview of theories explaining why some people do better than others in the world of work, and discussions of more specific questions relating to women's and men's job opportunities and experiences.

**SOCY227 Introduction to the Study of Deviance (3 Credits)**
An introduction to the sociological study of deviant behavior, covering such topics as mental illness, sexual deviance, and the use of drugs.
**Credit Only Granted for:** SOCY227 or SOCY327.
**Formerly:** SOCY327.

**SOCY230 Sociological Social Psychology (3 Credits)**
Why do people do that? Sitting at the nexus of sociology and psychology, this course surveys the various ways in which sociologists have answered this question. We investigate individuals-for example, how they develop and understand themselves in relation to others, how they choose to present themselves to the world, and how they form thoughts and opinions. And we study larger units of analyses, from small groups to the broader society. Topics covered include socialization, identity formation, social influence, group processes, how social processes shape individual behavior, and how human behavior shapes society.

**SOCY241 Inequality in American Society (3 Credits)**
A broad-based overview of inequality in contemporary U.S. society, focusing on measuring patterns and trends over time. A series of learning modules familiarizes students with how inequality unfolds in relation to social stratification processes along the lines of race, gender, education and social class, income and wealth, and health.
**Credit Only Granted for:** SOCY241 or SOCY441.

**SOCY242 Sociology of Homelessness (3 Credits)**
Examines the causes of and solutions for homelessness in society. How social scientists analyze social issues using ethnographic observation, surveys, official statistics, and other research methods. Discusses how policies have responded to the problem of homelessness, and how to evaluate their effectiveness.

**SOCY243 The Family: Diversity, Inequality, and Social Change (3 Credits)**
An exploration of diversity and inequality in family life, focusing on empirical patterns and trends, political and cultural debates, and policy issues, including the major theories and research methods used in the sociological study of the family in a plural society.
**Credit Only Granted for:** SOCY243 or SOCY443.
**Formerly:** SOCY443.

**SOCY244 Bridging Perspectives: Critical Conversations Between Students and Police (3 Credits)**
This course is a university curriculum created by the International Association of Chiefs of Police to enhance community-police engagement. This course brings university students and police together to engage in facilitated dialogue to learn from one another and build trust. Through this transformative educational course, both groups will enhance their knowledge of the structural and cultural frameworks that influence historical and current events and relationships between communities and police.

**SOCY245 The Family in Contemporary American Society (3 Credits)**
This is a course in the sociology of the family as an institutional arena in the United States. Students will become familiar with the empirical patterns and trends, political and cultural debates, and policy issues concerning families - and the major theories and research methods used in the sociological study of the family. The readings include a textbook and a research monograph. To succeed, students will attend lectures and participate in discussion; complete quizzes and in-class writing assignments; and take a midterm and final exam.
**Credit Only Granted for:** SOCY243 or SOCY245.

**SOCY258 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program
**Repeatable to:** 15 credits if content differs.

**SOCY265 War and Society, from the American Revolution to the Present (3 Credits)**
This course asks, why do nations make war the way they do? And how does the experience of waging war in this manner remake institutions, social and political relationships and even culture? To answer these questions, the course adopts a comparative and historical perspective, highlighting the ways nations organize and mobilize for armed conflict as well as how they define 'the enemy' against whom they direct armed force, and the ways these together shape the social consequences of warfare. Among the range of social consequences, we will focus on three: the experience of combat itself; the impact of war on class, race and gender relations; and the emergence of cultural values around armed conflict and the place of warfare and soldiers in society. The course concludes with almost a month devoted to making sense of the War in Ukraine and considering where to go from here.
**Credit Only Granted for:** SOCY465 or SOCY265.
**Formerly:** SOCY465.

**SOCY277 Intersectionality and Illness: How do Overarching Social Inequalities Affect Health Outcomes? (3 Credits)**
Students will examine the social determinants of disease: the relationship between socioeconomic status and health care access, as well as investigate the links between social status and disease chronicity. Students will further explore how health disparities, health resource distribution, and susceptibility disproportionately affect disadvantaged communities with chronic diseases.
**Credit Only Granted for:** SOCY277 or SOCY302.
**Formerly:** SOCY302.

**SOCY298 Selected Topics in Sociology (1-3 Credits)**
Special topics in Sociology.

**SOCY310 Sociology of Race, Class, Gender and Sports (3 Credits)**
Examines the institution of sport with an emphasis on race, gender, and class. The course will critically analyze assumptions, historical relationships, and contemporary issues in sports. The course will utilize sports as a platform to understand and explore sociological concepts, theories, and research.

**SOCY322 Immigration and Ethnicity in the US (3 Credits)**
Explores historical and contemporary Asian immigration to the US in comparison to and in the context of other immigrant groups. From low-skilled laborers to highly-skilled professionals, Asian and other immigrants have been an integral part of the shifting US economy and society since its inception. The course includes theories on why immigration occurs, determinants of its continuation, the uses of migrant labor, and immigrant adaptation and settlement. The second part of the course focuses on theories of ethnicity and racial formation and how immigrants develop and challenge the definitions of race, ethnicity, the "other", and ultimately, who is American. Students will also have the opportunity to gain first-hand knowledge of the immigrant experience through a life history interview project.
**Cross-listed with:** AAST322.
**Credit Only Granted for:** AAST322, SOCY222, HIST322 or SOCY322.
**Formerly:** AAST222, SOCY222.

**SOCY325 The Sociology of Gender (3 Credits)**
Institutional bases of gender roles and gender inequality, cultural perspectives on gender, gender socialization, feminism, and gender-role change. Emphasis on contemporary American society.
**Prerequisite:** 3 credits in SOCY courses.
**Cross-listed with:** WGSS325.
**Credit Only Granted for:** SOCY325, WMST325 or WGSS325.
**Formerly:** WMST325.

**SOCY335 Sociology of Health and Illness (3 Credits)**
An exploration of the social model to studying health and illness: how meanings and experiences of health and illness are socially produced. How experiences are shaped by the interaction of external social environments (culture, community) and the internal environment (human body), and by socio-demographic variables (race, class, gender, etc.). Disparities in health and healthcare delivery, medicalization of society, determinants of health, social construction of illness, and the social organization of health care.

**SOCY336 Gender and Health (3 Credits)**
The relationship between gender and health is the central focus of this course. We consider how health disparities between women and men vary by race and ethnicity, sexual and gender minority identity, and social class. We consider how institutional and cultural factors across social and spatial contexts influence gendered associations with physical and mental health. In addition, this is a course on how to do the disciplinary work of sociology. Social discourse and policies about health have been crucial to creating our current understanding of gender and health. This course will provide training in analyzing health disparities and preparing research and policy briefs about how to address these disparities. This will happen through group projects and a peer reviewed process that relies on critical feedback from sociologists engaged in the same project, in this case, the other students in this course.
**Credit Only Granted for:** SOCY236 or SOCY336.
**Formerly:** SOCY236.

**SOCY340 Globalization's Winners and Losers (3 Credits)**
What is the relationship between globalization and inequality? This course examines the factors shaping both between-nation and within-nation household income inequality for the past century. It is divided into four parts, each considering a different factor. First we seek to understand global trade historically. Second, we examine the more recent phenomenon of outsourcing. Third, we examine welfare and taxation policy and its role in shaping domestic inequality. Finally, we analyze the mechanisms for the accumulation of capital within global finance. By the end of the course, students will be able to discuss globalization beyond the "is it good or bad" binary and understand the complex interaction between domestic politics and international trade.

**SOCY358 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**SOCY370 Career Exploration and Professional Development for Sociology Majors (1 Credit)**
Prepares Sociology majors to make the transition from undergraduate to entering graduate school and/or the professional work world. Topics include career options in Sociology, skills for conducting a job search, resume writing and interview preparation, and the graduate application process.
**Restriction:** Must be in the Sociology major.

**SOCY378 Undergraduate Teaching Assistantship (1-3 Credits)**
The Undergraduate Teaching Assistant position offers exceptional Sociology undergraduates the opportunity to actively contribute to the educational process. This hands-on role involves assisting faculty in classroom activities, mentoring fellow students, and supporting academic assignments and assessments. Throughout the course, students develop crucial teaching and communication skills, learn effective time management, and gain valuable teamwork experience. This position not only enhances students' resumes but also equips them with skills vital for future academic and professional roles. This is an individual instruction course; contact the department or instructor to obtain section number.
**Restriction:** Permission of the Sociology Department.
**Repeatable to:** 9 credits if content differs.

**SOCY380 Honors Independent Reading in Sociology (3 Credits)**
This course permits sociology honor students to undertake a program or reading on a particular problem in sociology or a subfield therein. The reading will be done under the supervision of a member of the sociology faculty. Required of sociology honor students.
**Restriction:** Permission of BSOS-Sociology department.

**SOCY381 Honors Independent Research in Sociology (3 Credits)**
This course permits sociology students to define a particular problem in sociology or a subfield therein and to develop a research plan for use as a thesis topic. The work will be done under the supervision of a member of the sociology faculty.
**Prerequisite:** SOCY380.

**SOCY383 Honors Thesis Research (3 Credits)**
Student research under the direction of a member of the sociology faculty, culminating in the presentation and defense of a thesis reporting the research.
**Prerequisite:** SOCY381.

**SOCY386 Experiential Learning (3-6 Credits)**
**Restriction:** Permission of BSOS-Sociology department; and junior standing or higher.

**SOCY391 Surveillance and the Erosion of Privacy (3 Credits)**
Our world is under increasing amounts of surveillance, from states, corporations, and other individuals. These activities may affect our sense of privacy since surveilling others is done as a means to gather knowledge. This class examines surveillance and privacy together in order to answer the following questions: Are acts of surveillance in contemporary society eroding our sense of privacy? Are certain populations more or less privileged in terms of having privacy rights? How can we protect privacy rights in an age of surveillance?

**SOCY398 Special Topics in Sociology (1-3 Credits)**
Topics of special interest to both sociology majors and non-majors.
**Prerequisite:** 3 credits in SOCY courses.
**Repeatable to:** 6 credits if content differs.

**SOCY398G Global Migration and the Israeli Case Study (3 Credits)**
Over 70% of Israel's population is made of first, second or third generation immigrants, who came from over 70 countries, making Israel an ultimate immigrant society. This course will focus on the history of Israel as a case study for the understanding of the historical phenomena of modern immigration.
**Cross-listed with:** ISRL343.
**Credit Only Granted for:** ISRL349K, GVPT368G, SOCY398G, SOCY398I, or ISRL343.
**Formerly:** ISRL349K.

**SOCY399 Independent Study in Sociology (1-6 Credits)**
Integrated reading or research under the direction and supervision of a faculty member. A maximum of 6 credits may be earned by a student for the same field experience in SOCY386 and SOCY399 combined.
**Prerequisite:** 12 credits in SOCY courses.
**Restriction:** Permission of BSOS-Sociology department.
**Repeatable to:** 6 credits if content differs.

**SOCY401 Intermediate Statistics for Sociologists (3 Credits)**
This is a course about multiple regression for undergraduate students and presumes that students taking this course will be both producers and consumers of multiple regression results. Students will work with the instructor to produce a research poster presentation based on secondary social science data. In addition to multivariable statistics, students will learn some statistical programming as well as how to organize a research presentation.
**Prerequisite:** SOCY201 and SOCY202; or permission of the Sociology department.
**Restriction:** Must not have completed STAT400, BMGT231, or ENEE324.

**SOCY405 Scarcity and Modern Society (3 Credits)**
Resource depletion and the deterioration of the environment. Relationship to lifestyles, individual consumer choices, cultural values, and institutional failures. Projection of the future course of American society on the basis of the analysis of scarcity, theories of social change, current trends, social movements, government actions, and the futurist literature.
**Prerequisite:** 6 credits in SOCY courses.
**Credit Only Granted for:** SOCY305 or SOCY405.
**Formerly:** SOCY305.

**SOCY407 Explaining Social Change: Historical and Comparative Methods (3 Credits)**
Examines social change from the perspective of comparative and historical sociology to get at the question, 'where are we now?' Students develop a critical appreciation of how scholars construct persuasive explanations for large-scale change focusing on four central questions: the origins of markets and industrial capitalism; the emergence of democracy as opposed to dictatorship; the causes and consequences of social revolution; and the logic of armed conflict. Explanations offered for the changes in question as well as the methods employed are explored. Counterfactual hypotheticals for each central question--that is, what might have been, rather than what historically emerged--are considered.
**Prerequisite:** 6 credits in SOCY courses.
**Credit Only Granted for:** SOCY407 or SOCY498Y.
**Formerly:** SOCY498Y.

**SOCY410 Social Demography (3 Credits)**
Types of demographic analysis; demographic data; population characteristics; migration; mortality; fertility; population theories; world population growth; population policy.
**Prerequisite:** 6 credits in SOCY courses; or permission of BSOS-Sociology department.

**SOCY411 Demographic Techniques (3 Credits)**
Basic techniques for analyzing population structure and demographic processes, including fertility, mortality and migration.
**Prerequisite:** (SOCY201; or students who have taken courses with comparable content may contact the department); and SOCY410. Or permission of BSOS-Sociology department.

**SOCY412 Family Demography (3 Credits)**
Family and population dynamics. Fertility issues, such as teenage pregnancy, the timing of parenthood, and family size, as they relate to family behavior, such as marital patterns, child care use, and work and the family. Policy issues that relate to demographic changes in the family.
**Prerequisite:** SOCY201 and SOCY202; or permission of the Sociology department.

**SOCY413 Sociology of Aging (3 Credits)**
The aging of the population is one of the major demographic changes affecting social institutions during the next century. Research demography, sociology, economics, epidemiology, psychology and public health are integrated to develop a broader understanding of the causes and consequences of population aging. A central focus is the diversity of experiences by age, gender, socioeconomic status and health.
**Prerequisite:** SOCY201 and SOCY202; or permission of the Sociology department.

**SOCY415 Environmental Sociology (3 Credits)**
Overview of the field and theoretical themes within the area of environmental sociology and technology. Current issues are explored including: environmental attitudes; environmental movements; environmental justice; globalization; global climate change; and garbage and food.
**Prerequisite:** 6 credits in SOCY courses.

**SOCY418 Research in Family & Demography (3 Credits)**
This is a special topics research course for Family and Demography.
**Prerequisite:** SOCY201 and SOCY202; or permission of the Sociology department.
**Repeatable to:** 6 credits if content differs.

**SOCY420 Qualitative Research Methods in Sociology (3 Credits)**
Using the sociological imagination to independently explore research questions as designed by students. Readings will explore dilemmas qualitative researchers confront such as, how to conduct research ethically and how their background influences their findings and analysis. Students will learn how to collect data, analyze it, and present it to others.
**Prerequisite:** SOCY201 and SOCY202; or permission of the Sociology department.

**SOCY424 Sociology of Race Relations (3 Credits)**
Encourages sociological thinking about US racial and ethnic minority populations, with a focus on African Americans, Latinos, Asian Americans, and Native Americans. The central concern is to understand and explain racial/ethnic inequality. A wide array of topics are discussed, including prejudice and discrimination, slavery, residential segregation, cultural inequality, skin tone stratification, economic and educational disparities, and assimilation/generational processes.
**Prerequisite:** 6 credits in SOCY courses; or permission of the Sociology department.
**Cross-listed with:** AAST424.
**Credit Only Granted for:** SOCY424 or AAST424.

**SOCY428 Research in Inequality (3 Credits)**
This is the special topics research course for Stratification and Inequality.
**Prerequisite:** SOCY201 and SOCY202; or permission of the Sociology department.
**Repeatable to:** 6 credits if content differs.

**SOCY431 Principles of Organizations (3 Credits)**
Structural and processual characteristics of organizations that make them effective for different purposes and in different environments. Effects of different institutional environments, small group processes, organizational networks, and leadership. Types of organizations studied include formal bureaucracies, professional organizations, and voluntary associations.
**Prerequisite:** SOCY201 and SOCY202; or permission of BSOS-Sociology department.

**SOCY432 Social Movements (3 Credits)**
This course broadens students' understanding of social movements in the United States. Many topics are discussed, including the emergence of social movements, why people join social movements, collective identity, gender, culture, emotions, tactics, repression, and the decline of social movements. Various movements are reviewed, including the civil rights movement, the Chicano movement, the women's movement, the LGBTQ movement, the white power movement, the American Indian movement, and the animal rights movement.
**Prerequisite:** 6 credits in SOCY courses; or permission of BSOS-Sociology department.

**SOCY435 Society, Biology, and Health (3 Credits)**
It is not too far-fetched to speak of the pancreas under capitalism or the proletarian lung. Humans are social beings in physical bodies. In this course, we draw on research studies, podcasts, news articles, and best-selling non-fiction to inform conversation and writing on how various dimensions of human biology influence, and are influenced by, our social and cultural environment. We focus on conceptualizing human behavior as an interplay between both nature and nurture, and consider how this approach changes our understanding of modern social problems. This course is appropriate for students with a range of backgrounds in the social and natural sciences; introductory-level supplemental readings on all necessary biological concepts will be provided.
**Prerequisite:** Must have completed 6 credits in SOCY courses or permission of BSOS Sociology Department.

**SOCY441 Social Stratification and Inequality (3 Credits)**
The sociological study of social class, status, and power. Topics include theories of stratification, correlates of social position, functions and dysfunctions of social inequality, status inconsistency, and social mobility.
**Prerequisite:** 6 credits in SOCY courses; or permission of BSOS-Sociology department.
**Restriction:** Junior standing or higher.

**SOCY442 The Black Middle Class (3 Credits)**
Students will learn about the Black Middle Class. They will examine and explore the historical context that led to the rise of a Black Middle Class. Innovative avenues into the Black Middle Class will also be examined, including various household and family formations. Finally, the course will cover the consequences of being in the The Black Middle Class, with an emphasis on residential segregation and racial identity.
**Prerequisite:** 6 credits in SOCY courses.
**Credit Only Granted for:** SOCY498T or SOCY442.
**Formerly:** SOCY498T.

**SOCY445 Sex and Love in Modern Society (3 Credits)**
Sociological theories of sex and gender are used to explore empirical research on women's and men's sexual behavior and attitudes; variation in gendered sexuality by key social characteristics and how gendered sexuality is constructed and controlled; changes in sexuality over time and across relationship types, focusing on changes in sexual desire and behaviors and on the changing meaning of sex and marriage in U.S. society and other countries. Contemporary debates about sexuality will also be examined.
**Prerequisite:** SOCY201, SOCY202, SOCY203, and SOCY230.
**Restriction:** Must be in Sociology program; or permission of BSOS-Sociology department.
**Credit Only Granted for:** SOCY498X or SOCY445.
**Formerly:** SOCY498X.

**SOCY450 Investigating Women's Empowerment in Low and Middle Income Countries (3 Credits)**
Students in this course will learn how the study of women's empowerment in low and middle income countries (LMICs) has developed, its current state of measurement, and new avenues to pursue in the future. Examining the extensive research on gender-based inequalities in educational attainment, employment rates, and health status, students will investigate how power imbalances across individuals, households, and institutional factors result in persistent inequality. Bringing an intersectional perspective to the forefront of the course, we will study how to design effective intervention policies that seek to improve the daily lives of women, girls and their families.
**Prerequisite:** SOCY201 and SOCY202; or permission of BSOS-Sociology department.

**SOCY451 Sociology of Culture (3 Credits)**
Analyzes the relationship between society and culture. How do social forces affect cultural objects and products? How do values and meanings shape individual behavior? How can culture be both a source of domination and resistance? These and other topics will be analyzed to show the role of culture in our lives.
**Prerequisite:** 6 credits in SOCY courses; or permission of the department.
**Credit Only Granted for:** SOCY498C or SOCY451.
**Formerly:** SOCY498C.

**SOCY452 Sociology of Mental Health (3 Credits)**
The class focuses upon the larger question: "What is the balance between people being mentally 'ill' and us having a 'sick' society?" To explore this question, students will utilize sociological approaches toward mental illness and health. This will manifest as a focus on how social organization is related to mental health and illness. Students will consider how sociologists understand the nature, distribution, and treatment of mental illness and health in society, and will develop a personal understanding of what it means to be mentally healthy.
**Prerequisite:** 6 credits in SOCY courses; or permission of the department.
**Credit Only Granted for:** SOCY498O or SOCY 452.
**Formerly:** SOCY498O.

**SOCY453 Racial Residential Segregation (3 Credits)**
Examines how race and ethnicity have historically shaped residential patterns in the U.S. and their continuing importance today. Students will investigate the causes of residential segregation, including residential preferences, discrimination, and socioeconomic differences between racial and ethnic groups. Significant attention will be paid to how immigration and ensuing ethnic and racial diversity are reshaping the residential landscape. The readings highlight the U.S. context, though residential patterns in different countries are also briefly discussed.
**Prerequisite:** 6 credits in SOCY courses; or permission of the department.
**Credit Only Granted for:** SOCY498D or SOCY453.
**Formerly:** SOCY498D.

**SOCY456 Smart Machines and Human Prospects (3 Credits)**
Artificial intelligence is everywhere and never sleeps. It is transforming our social institutions in intended and unintended ways. While scientists debate the feasibility of engineering conscious machines with general intelligence, no one debates that the global race is on to create more potent computers. Through targeted research, discussion, and presentation of findings students will answer a specific question on how, where, and in what ways society is being changed by smart machines.
**Prerequisite:** SOCY201 and SOCY202; or permission of the Sociology department.
**Credit Only Granted for:** SOCY416 or SOCY456.

**SOCY457 Sociology of Law (3 Credits)**
Social, political, and cultural sources of legal norms and concepts; and how the law shapes society and society shapes the law using sociological theoretical frameworks. The role of social change, social reproduction and inequality (including race, class, gender, and sexuality) to achieve certain objectives such as compliance, deterrence and social control.

**SOCY458 Special Topics in Study Abroad IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**SOCY461 Sociology in Action: Research and Community Engagement in Prince George's County (3 Credits)**
Sociology in Action is a research course that will use the science of sociology to inform real life issues and contribute to the development of social programs. In this course, students will gain hands-on experience in applying sociology by working with clients in Prince George's County on specific social problems and issues. Please assess your ability to commit to this course and fulfill all requirements. Given that students will be working with Prince George's County organizations, there will be some variation and unpredictability in the nature of the projects.
**Prerequisite:** SOCY202; or students who have taken courses with similar content may contact the department.

**SOCY462 Digital Technology and Society (3 Credits)**
Situates digital technology in our social environment and then examines how this relationship reflects, reinforces, or reorders social hierarchies. Students will learn the conceptual and methodological foundations for studying and evaluating how technologies such as health and social media apps, the personal computer, artificial intelligence, and weapons of war have evolved, diffused and impacted social life. Students will explore and then conduct independent research on the relationship between technology and social inequalities through the lens of health and medicine, the environment and climate change, jobs and the workplace, as well as government and criminal justice.
**Prerequisite:** Must have completed 6 credits in SOCY courses; or permission of BSOS-Sociology department.

**SOCY463 Sociology of Masculinity: How Much Has Masculinity Really Changed? (3 Credits)**
An examination of the history both feminist social movements and feminist sociology in a specific way. It uses the sociological subfield of men and masculinities as a keyhole through which we will study 'the stalled revolution' for women's equality. Along the way, we will familiarize ourselves with academic and popular reports about changing and contested definitions, ideas, and behaviors of masculinity.
**Prerequisite:** 6 credits in SOCY courses; or permission of BSOS Sociology department.

**SOCY465 The Sociology of War: State and Society since the American Revolution (3 Credits)**
Since the American and French Revolutions at the end of the eighteenth century, warfare has been marked by the way national states draw ordinary people into armed conflicts--as members of the military, producers and controllers of resources and supporters or resisters, and also as targets and victims. This course examines how the centering of ordinary people in war has transformed over time, continuing right up to the current conflict in Ukraine. Alongside explaining why states make war the way they do, the course explores the impacts of making war and living through conflict on the societies embroiled in it.
**Prerequisite:** Must have completed 6 credits in SOCY courses; or permission of BSOS-Sociology department.
**Credit Only Granted for:** SOCY465 or SOCY265.

**SOCY467 Sociology of Education (3 Credits)**
Sociological analysis of educational institutions and their relation to society: goals and functions, the mechanisms of social control, and the impacts of stratification and social change. Study of the school as a formal organization, and the roles and subcultures of teachers and students.
**Prerequisite:** 6 credits in SOCY courses; or permission of BSOS-Sociology department.

**SOCY470 Pregnancy and Parenthood in an Unequal Society (3 Credits)**
Analysis of patterns in sexual activity, contraceptive use, and unintended pregnancy, and how they reinforce or alleviate socioeconomic, gender, and racial inequalities. Emphasis on the role of healthcare providers and contraceptive access, attitudes about motherhood and contraception, policy interventions, and institutional designs. Social and economic consequences of increasing women's ability to control their fertility.
**Prerequisite:** 6 credits in SOCY courses; or permission of Sociology Department.

**SOCY475 Sociology of Emotions (3 Credits)**
Emotions are often thought of as purely subjective experiences. How much more personal than one get than their emotions and feelings? In addition to their physiological and psychological aspects, however, emotions have a social side that often go unnoticed. This course will introduce you to the social aspects of emotions. In doing so, we will cover wide-ranging topics including the social causes of emotions, social norms about emotions, disparities in emotionalexperiences, and the ways in which emotions can maintain and reshape society.
**Prerequisite:** 6 credits in SOCY courses; or permission of BSOS-Sociology Department.
**Credit Only Granted for:** SOCY498W or SOCY475.
**Formerly:** SOCY498W.

**SOCY480 Researching the Middle East (3 Credits)**
Introduces religion, gender, and politics in the Middle East and North Africa. After an overview of the political and social history the focus will be on methods for carrying out research on fundamental issues facing Middle Eastern societies, including national identity, religion, gender relations and the status of women in the family, politics, education, and labor market.
**Prerequisite:** SOCY201 and SOCY202; or permission of the Sociology department.
**Credit Only Granted for:** SOCY498E or SOCY480.
**Formerly:** SOCY498E.

**SOCY481 Ideology and Social Conditions in the Making of Terrorism in the Middle East and North Africa (3 Credits)**
The sociology of terrorism and political violence in the Middle East and North African will be explored in this course.
**Prerequisite:** Must have completed 6 credits in SOCY courses or permission of the Sociology department.
**Restriction:** Sophomore standing or higher.

**SOCY490 Experimental Research Practicum (3 Credits)**
Hands-on experience in designing, conducting, and analyzing experimental research. Introduces students to causal inference in social scientific research, focusing on experimental designs. Students will get hands-on research experience running experimental studies in the group processes lab. Students will also work with the professor and graduate students in the department to develop a research idea that can be executed in the spring semester.
**Prerequisite:** SOCY201 and SOCY202; or permission of the Sociology department.
**Additional Information:** This is the first course in the experimental research practicum 2-course sequence.

**SOCY491 Experimental Research Design (3 Credits)**
Students will finalize the design of their studies from the fall semester and carry out the research in this course. Introduces students to analyzing experimental data and presenting results from these data. Students will continue to get hands-on research experience running experimental studies in the group processes lab and working with the professor and graduate students in the department to further develop their projects.
**Prerequisite:** SOCY201, SOCY202 and SOCY490; or permission of BSOS-Sociology department.
**Additional Information:** This is the second course in the experimental research practicum 2-course sequence.

**SOCY498 Selected Topics in Sociology (1-3 Credits)**
Topics of special interest to advanced undergraduates in sociology. Such courses will be offered in response to student request and faculty interest.
**Prerequisite:** SOCY201 and SOCY202; or permission of BSOS-Sociology department.
**Repeatable to:** 6 credits.

# SPAN - Spanish

**SPAN103 Intensive Elementary Spanish (4 Credits)**
Covers speaking, reading, writing, listening, and culture of Spanish-speaking world.
**Prerequisite:** Must have appropriate Foreign Language Placement Test (FLPT) score.
**Restriction:** Must not be a native/fluent speaker of Spanish.
**Credit Only Granted for:** SPAN102 or SPAN103.

**SPAN169 Special Topics in Study Abroad I (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**SPAN203 Intensive Intermediate Spanish (4 Credits)**
Covers speaking, reading, writing, listening, and culture of Spanish-speaking world.
**Prerequisite:** SPAN103; or must have appropriate Foreign Language Placement Test (FLPT) score.
**Restriction:** Must not be a native/fluent speaker of Spanish.

**SPAN204 Spanish Grammar Review (3 Credits)**
An in-depth study and analysis of selected grammatical topics in a contextualized framework.
**Prerequisite:** SPAN203; or must have appropriate Foreign Language Placement Test (FLPT) score.
**Restriction:** Not open to fluent/native speakers of Spanish.

**SPAN206 Spanish for Heritage Speakers I (3 Credits)**
Review of oral and written Spanish for students who have native or near native knowledge of, but no formal education in Spanish. Taught in Spanish.
**Prerequisite:** Native or near native knowledge of and no formal education in Spanish.

**SPAN207 Reading and Writing in Spanish (3 Credits)**
Selected readings with emphasis on reading comprehension and the development of reading strategies. Work in composition writing and a review of selected grammatical topics. Complements material of SPAN204.
**Prerequisite:** Must have completed or be concurrently enrolled in SPAN204; or must have appropriate World Language Placement Test (WLPT) score.

**SPAN222 Cultural Difference in Contemporary Latin America (3 Credits)**
Introduction to representations and expressions in Latin America: cultural stereotypes, representations of difference, forms of discrimination, sublimation of difference into national identity, and the staging of the other. Taught in English.

**SPAN224 Violence and Resistance in the Americas (3 Credits)**
Indigenous vision of violence and resistance in the Americas. Texts and maps from the European explorers and conquerors are also studied. Readings include primary texts from the 16th as well as from the 20th century. Taught in English.

**SPAN225 Cultures of the Contact Zones - Seville, Al-Andalus and the Atlantic World (3 Credits)**
Content is broad enough to deal with issues of multiculturalism in Spain but also specific enough to center on the city of Seville and the Andalusion region.
**Cross-listed with:** HONR248E.
**Credit Only Granted for:** HONR248E or SPAN225.

**SPAN228 Selected Topics in Latin American Literature and Society (3-6 Credits)**
Variable cultural studies topics on literature and society in contemporary Latin America. Taught in English.
**Cross-listed with:** PORT228.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** PORT228 or SPAN228.

**SPAN229 Selected Topics in Latin American Culture (1-3 Credits)**
Varied topics in Latin America culture.
**Repeatable to:** 9 credits if content differs.

**SPAN234 Issues in Latin American and Caribbean Studies I (3 Credits)**
Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America's cultural mosaic, migration and urbanization. Democratization and the role of religions. Taught in English.
**Cross-listed with:** LACS234, PORT234.
**Credit Only Granted for:** LASC234, PORT234, SPAN234, or LACS234.
**Formerly:** LASC234.

**SPAN235 Issues in Latin American and Caribbean Studies II (3 Credits)**
Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. Taught in English.
**Cross-listed with:** LACS235, PORT235.
**Credit Only Granted for:** LASC235, PORT235, SPAN235, or LACS235.
**Formerly:** LASC235.

**SPAN269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**SPAN301 Advanced Grammar and Composition I (3 Credits)**
Practice of complex grammatical structures through reading and writing of compositions and essays. Specific lexical, syntactic, rhetorical, and stylistic devices will be highlighted.
**Prerequisite:** Must have completed or be concurrently enrolled in SPAN207.

**SPAN302 Advanced Grammar and Composition II (3 Credits)**
Practice in and writing of different types of compositions and essays, including narrations, descriptions, and persuasive writing. Review of problematic syntactical structures.
**Prerequisite:** SPAN301.

**SPAN303 Approaches to Cultural Materials in the Hispanic World (3 Credits)**
Development of proficiency in critical thought through the reading, viewing, and analytical discussion of major genres and styles of cultural materials selected from Spanish-speaking world. Taught in Spanish.
**Prerequisite:** SPAN301.
**Recommended:** May elect to take SPAN311 and/or SPAN316 in same semester as SPAN303.

**SPAN306 Spanish for Heritage Speakers II (3 Credits)**
Practice of complex grammatical structures through reading and writing of compositions and essays. Specific lexical, syntactic, rhetorical and stylistic devices will be highlighted. Designed for Spanish speakers educated in English. Taught in Spanish.
**Prerequisite:** SPAN206.

**SPAN307 Oral Communication Skills for Heritage Speakers of Spanish (3 Credits)**
Development of techniques for formal public speaking in Spanish. Writing and delivering oral presentations for varied audiences and purposes. Includes strategies for organization, the use of rhetorical patterns, and the development of effective discourse. Designed for Heritage speakers of Spanish with native or near native knowledge of Spanish, but no formal education in Spanish. Taught in Spanish.
**Prerequisite:** Native or near native knowledge of and no formal education in Spanish.

**SPAN311 Advanced Communication I (3 Credits)**
Further development of listening, speaking, and writing skills in Spanish. Opportunity to develop oral and written fluency, improve pronunciation and increase vocabulary. Individual and/or group oral presentations. Taught in Spanish.
**Prerequisite:** SPAN301; and must have completed or be concurrently enrolled in SPAN303.
**Restriction:** Must not be a native/fluent speaker of Spanish.

**SPAN312 Advanced Conversation II (3 Credits)**
Continued mastery of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation, and increase vocabulary. Emphasis on colloquial and technical language as well as development of linguistic accuracy. Individual and/or group oral presentation.
**Prerequisite:** SPAN311.
**Restriction:** Must not be a native/fluent speaker of Spanish.

**SPAN316 Spanish Translation I (3 Credits)**
Translation of texts into Spanish and/or English. Taught in Spanish.
**Prerequisite:** SPAN301; and must have completed or be concurrently enrolled in SPAN303.

**SPAN317 Translation II (3 Credits)**
Translation of non-literary, non-technical texts into Spanish and/or English.
**Prerequisite:** SPAN316.

**SPAN318 Translation of Technical Texts (3 Credits)**
Specialized texts in law and international affairs into Spanish and/or English. Taught in Spanish.
**Prerequisite:** SPAN303; and (SPAN311 or SPAN316).
**Repeatable to:** 6 credits if content differs.

**SPAN325 Hispanic Linguistics I: Grammar and Society (3 Credits)**
Sociolinguistic approach to Spanish grammar focusing on real-life exploration of the ways linguistic structures change and are used in different parts of the Spanish-speaking world. Taught in Spanish.
**Prerequisite:** SPAN303; and (SPAN311 or SPAN316).
**Credit Only Granted for:** SPAN310 or SPAN325.
**Formerly:** SPAN310.

**SPAN331 Spanish Culture, Civilization and Literature I: Medieval Times (3 Credits)**
The exploration of cultures of the Iberian Peninsula from its origins until the 15th century as well as the study of historical and political events that gave rise to the Spanish state. Taught in Spanish.
**Prerequisite:** SPAN303; and (SPAN311 or SPAN316).

**SPAN332 Spanish Culture, Civilization and Literature II: Renaissance and Baroque (3 Credits)**
An overview of cultural and literary production of Spain from the late 15th through late 17th centuries, exploring the production of literary texts in their socio-historical, political, religious and cultural contexts and development. Taught in Spanish.
**Prerequisite:** SPAN303; and (SPAN311 or SPAN316).

**SPAN333 Spanish Culture, Civilization and Literature III: Modern Times (3 Credits)**
An overview of cultural and literary production of Spain from the late 17th century through the present day, exploring the production of literary texts in their socio-historical, political, religious and cultural contexts and development. Taught in Spanish.
**Prerequisite:** SPAN303; and (SPAN311 or SPAN316).

**SPAN335 Cultural History of Seville (4 Credits)**
Cultural History of Seville: An exploration of the Iberian, Mediterranean, and transatlantic contexts shaping the history, identity, and cultural and artistic expressions of Seville. Includes texts from the Middle Ages to the twenty first century. Focus on the historical, literary and cultural evolution of Seville from the Roman Empire and the Moorish occupation to the discovery and conquest of America until present times. Taught in Spanish.
**Prerequisite:** SPAN301.
**Recommended:** SPAN303.

**SPAN359 Spanish for the Professions (3-9 Credits)**
Exploration of cultural and linguistic skills for different professional contexts including vocabulary, listening, speaking, reading and strategies. No experience in the professional area necessary. Taught in Spanish.
**Prerequisite:** SPAN316; or permission of department.
**Repeatable to:** 9 credits if content differs.

**SPAN361 Latin American Literatures and Cultures I: From Pre-Columbian to Colonial Times (3 Credits)**
Overview of cultural history of Latin America from pre-Columbian civilizations to the Colonial period, exploring the foundations of the Spanish American cultural and literary tradition to approximately 1770. Taught in Spanish.
**Prerequisite:** SPAN303; and (SPAN311 or SPAN316).

**SPAN362 Latin American Literatures and Cultures II: From Independence to Nation Formation (3 Credits)**
An overview of cultural and literary production of Latin America from the 18th Century to approximately 1900, exploring the production of literary texts in their socio-historical, political, and cultural contexts and development. Taught in Spanish.
**Prerequisite:** SPAN303; and (SPAN311 or SPAN316).

**SPAN363 Latin American Literatures and Cultures III: From Modernism to Neo-Liberalism (3 Credits)**
An overview of cultural and literary production of Latin America from the late 19th through the early 21st centuries, exploring the production of literary texts in their socio-historical, political, and cultural contexts and development. Taught in Spanish.
**Prerequisite:** SPAN303; and (SPAN311 or SPAN316).

**SPAN369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**SPAN370 Spanish for Business I (3 Credits)**
Business Spanish terminology, vocabulary and practices. Emphasis on everyday spoken and written Spanish. Readings and discussions of Spanish commercial topics. May include exposure to Spanish commercial topics. May include exposure to Spanish business environments. Taught in Spanish.
**Prerequisite:** SPAN303; and (SPAN311 or SPAN316).
**Credit Only Granted for:** SPAN315 or SPAN370.
**Formerly:** SPAN315.

**SPAN371 Spanish for the Health Professions (3 Credits)**
Exploration of cultural and linguistic skills for the health professions including vocabulary, listening, speaking, reading and strategies. No experience in the professional area necessary. Taught in Spanish.
**Prerequisite:** SPAN303; and (SPAN311 or SPAN316).

**SPAN372 Spanish and the Law (3 Credits)**
Offers students the opportunity to enhance Spanish linguistic and intercultural communication skills in contexts of legal practice through the translation of a variety of legal documents. Introduces Spanish legal terminology in areas such as immigration, consumer protection, and criminal/employment/housing/family law. Students will learn how to apply these language and cultural skills as future legal practitioners interacting with clients who possess limited English proficiency. Native or fluent guest participants will expose students to legal terminology, registers, and dialects from various Spanish-speaking countries. The goal of the class is to enable students to, at a minimum, conduct intake interviews in a culturally competent fashion with Spanish-speaking clients without the assistance of interpreters. The course is designed to be beneficial for students with varying levels of Spanish language ability, up to and including students who are native or heritage speakers of Spanish. Taught in Spanish
**Prerequisite:** SPAN311 or SPAN316.
**Credit Only Granted for:** SPAN372 or SPAN359O.
**Formerly:** SPAN359O.

**SPAN373 Spanish in the Media (3 Credits)**
Exploration of Spanish in current events in the Hispanic world in local and international press and varied media, and production of journalistic articles.
**Prerequisite:** SPAN303; and (SPAN311 or SPAN316). Or permission of instructor.
**Credit Only Granted for:** SPAN373 or SPAN359A.
**Formerly:** SPAN359A.

**SPAN374 Spanish in the Community (3 Credits)**
Provides students with context for understanding, communicating with, and working with the Spanish-speaking community. Topics include Latino/a demographics, cultures, communities, work opportunities and local uses of Spanish. Requires outside service-learning work.
**Prerequisite:** SPAN303; and (SPAN311 or SPAN316). Or permission of instructor.
**Credit Only Granted for:** SPAN374 or SPAN359B.
**Formerly:** SPAN359B.

**SPAN375 Spanish in the Life Sciences (3 Credits)**
Communication and critical thinking skills in Spanish through the study of materials related to science. The course engages students in class discussions about a variety of topics in different formats, such as book chapters, articles, film, art, and literary works. The course is divided into five units that will allow the study of specific geographies, topics, and cases in the Spanish-speaking world. Assignments include a research proposal and visits to the National Zoo and the National Museum of Natural History. No technical knowledge is necessary, as we will emphasize the language of science, not the content itself. Taught in Spanish.
**Prerequisite:** SPAN303 and SPAN311; or SPAN316; or permission of instructor.
**Credit Only Granted for:** SPAN359L or SPAN375.
**Formerly:** SPAN359L.

**SPAN386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Restriction:** Junior standing or higher.

**SPAN388W Writing Center Internship (1-6 Credits)**
Examines face-to-face and online writing center theory and practice through readings, exercises, and supervised tutoring. Students investigate the writing process and help other writers to negotiate it.
**Prerequisite:** Permission of the Writing Center (1205 Tawes Hall).
**Cross-listed with:** ENGL388W.
**Repeatable to:** 12 credits.
**Credit Only Granted for:** ENGL388W or SPAN388W.

**SPAN399 Independent Study in Spanish (1-3 Credits)**
Specific readings in literature or a translation project under the supervision of a faculty member of the department.
**Prerequisite:** Permission of ARHU-School of Languages, Literatures, and Cultures department.
**Repeatable to:** 3 credits.

**SPAN401 Advanced Composition I (3 Credits)**
Compositions and essays with emphasis on stylistics, idiomatic and syntactic structures. Organization and writing of research papers.
**Prerequisite:** SPAN302; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**SPAN402 Advanced Composition II (3 Credits)**
Compositions and essays with emphasis on stylistics, idiomatic and syntactic structures. Organization and writing of research papers.
**Prerequisite:** SPAN401; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**SPAN404 The Bright Middle Ages (3 Credits)**
The period that precedes the Renaissance has been traditionally labeled as the "dark" Middle Ages and it is common to associate an evil, brutality and barbarian life style with the time span comprised of between the 5th and the 15th centuries. This undergraduate seminar does not intend to embellish the truth or to minimize the hardships of life and death at the time of the Crusades. In fact, an objective timeline of historical events that marked that period as middle will be provided, and the central question to be addressed in this class is, "Middle of what"? As we try to answer it, we will be able to examine many "modern" aspects of the Middle Ages. Some of them have been highlighted since the beginning of the 20th century and justify a view of the Middle Ages as a bright and "modern" period in which, while overcoming despicable difficulties and a lack of facilities, the most precious treasures of our times were intellectually conceived, manufactured, built, and written. Taught in Spanish.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.
**Credit Only Granted for:** SPAN404, or SPAN408I.
**Formerly:** SPAN408I.

**SPAN405 North American Neomedievalism: the U.S. East Coast and 16th-Century Spain (3 Credits)**
The fall of the Roman Empire certainly did not affect North America, but the European Middle Ages created several patterns of expansion that, with considerable transformations, are present in North America and all over the world. Through the study of Neomedievalism, students will be able to better understand today's national and international relations. We will read scholarship that helps us understand that it is not an accident that we have replicas of medieval villas and that we are increasingly interested in developing games and producing movies that replicate medieval life. We will also study why the failure and success of social and economic systems of the past have influenced modern civilizations and why the loaded concepts of "barbarian" and "foreign" have not disappeared. Taught in Spanish.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.
**Credit Only Granted for:** SPAN405 or SPAN408C.
**Formerly:** SPAN408C.

**SPAN406 Don Juan Manuel's Fictional and Historical Prose (3 Credits)**
Dedicated to the literary production of an important author: Don Juan Manuel. By examining the interaction among writing, reading and the oral acquisition of knowledge in his works, special attention will be given to how the border between fact and fiction is constructed in the Middle Ages.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.

**SPAN407 Early Modern US and Early Modern Spain: A Common History (3 Credits)**
The impact of Spanish early modern literature, cartography and architecture in the US Atlantic Coast (Labrador Peninsula to Florida). The class will start with readings that will provide a general overview of the Spanish presence in the US and its role in the early history of this country. We will continue reading about the voyages of exploration to the US East Coast of 1521-1526, which were sponsored by a Spaniard, Lucas Vazquez de Ayllon. These voyages subsequently resulted in a territory named "Tierras de Ayllon" (from Florida to the Chesapeake Bay). These Lands of Ayllon were located on the settlement of Chicora and the Missions of Ajacan and San Miguel de Gualdape. We will focus on the history and the geographical location of these Spanish establishments; they paralleled geographically and anteceded chronologically those of the British colony at Roanoke (1585) and the eventual establishment of Jamestown (1607). Taught in Spanish.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.

**SPAN408 Special Topics in Iberian and Latin American Studies (3 Credits)**
Special topics in (a) the literature and film of Spain, Spanish-speaking Latin America, and U.S. Latina/o communities; (b) Spanish linguistics; and (c) Spanish, Latin American, and U.S. Latino cultural studies. Each topic will be announced when the course is offered.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.

**SPAN410 Libro de Buen Amor: Literary Matchmaking, Theory, and Praxis (3 Credits)**
Literary traditions in the Libro de buen amor. Taught in Spanish
**Prerequisite:** One of the following SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.
**Credit Only Granted for:** SPAN410 or SPAN413.
**Formerly:** SPAN413.

**SPAN412 Women in the Middle Ages: Myths and Daily Life (3 Credits)**
Explores the role of women during the Middle Ages and analyzes the active participation of women in a society in which men's occupation was warfare. Also explores "feminine voices" and female representations in the literature of the times.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.

**SPAN417 Practicum in Translation VI (3 Credits)**
Translation of complete literary texts from Spanish into English. Evaluation of different versions of the original. Problems of interpretation, literary structure and analysis.
**Prerequisite:** SPAN316; or permission of ARHU-School of Languages, Literatures, and Cultures department.

**SPAN418 Hispanic Literature in Translation (3 Credits)**
**Repeatable to:** 6 credits if content differs.

**SPAN420 Spanish and Spanish-Speaking Communities in the US (3 Credits)**
Lays the foundations for the historical, linguistic, cultural, sociological, and political study of Spanish in the United States (US). The main goal of the course is to develop critical awareness about the relationship between language, individuals, and society within the diverse Spanish-speaking communities of the US. To this end, the course will analyze issues concerning, first, the historical and dialectal characteristics of the Spanish language in different regions of this country; second, the acquisition of Spanish as a minority language and in contact with both English and a large number of Spanish dialects; and third, the space that Spanish occupies in US public life now and in the future. The design of activities, assignments, and assessment procedures is based on promoting individual and collective awareness about crucial topics related to the present and the future of Spanish as one of the national languages of the US.
**Prerequisite:** SPAN325, SPAN425, or permission of instructor.
**Credit Only Granted for:** SPAN478A or SPAN420.
**Formerly:** SPAN478A.

**SPAN422 Intercultural Communication and Negotiation (3 Credits)**
Focuses on the relationship of language and culture of those operating in world markets. Particular attention will be given to intercultural communication, linguistic systems, culture specific perceptions of, and negotiation with, the Spanish-speaking world. Taught in Spanish.
**Prerequisite:** SPAN370 OR SPAN371 OR SPAN373 OR SPAN 374.
**Restriction:** Junior standing or higher.

**SPAN425 Hispanic Linguistics II: Structures of Spanish (3 Credits)**
This course begins with an introduction to general concepts in linguistics, from language function and the brain to communication, culture, and thought, and their relation to other disciplines in the social sciences. The main purpose of this course is to provide an overview of Hispanic linguistics through multiple perspectives, while exploring the areas of Spanish morphology, syntax, and semantics. This course will also focus on the structural tendencies of Spanish through a variety of practical activities. Taught in Spanish.
**Prerequisite:** SPAN303; and SPAN311 or SPAN316 or SPAN325.

**SPAN426 Hispanic Linguistics III: Language in Use (3 Credits)**
Designed for students without previous experience in Linguistics. Focus on language variation and use, linguistic change, and bilingualism. Taught in Spanish.
**Prerequisite:** SPAN303; and SPAN311 or SPAN316 or SPAN325. Also offered as: SPAN626.
**Credit Only Granted for:** SPAN426 or SPAN626.

**SPAN427 Visions and Fictions from Spain (3 Credits)**
Overview of Spanish Cinema from the end of the 19th century through present day Spain. Exploration of the production of literary and cinematic texts in their sociohistorical, political, religious and cultural contexts. Taught in Spanish.
**Prerequisite:** SPAN331, SPAN332, or SPAN333; or students who have taken courses with comparable content may contact the department; or permission of ARHU-Spanish & Portuguese Languages & Literatures department.
**Cross-listed with:** CINE427.
**Credit Only Granted for:** CINE427, FILM427 or SPAN427.
**Formerly:** FILM427.

**SPAN431 Mexican Women Writers (3 Credits)**
Focuses on Mexican women writers from the colonial period to the present. It consists of various types of texts, including poetry, short story, essay, and novel. Its principal themes include the relations among experience, knowledge, and expression; the presence or absence of women in literary histories, including Wikipedia pages; feminism; and the opportunities and challenges presented by the category of women writers. Taught in Spanish.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.
**Credit Only Granted for:** SPAN431 or SPAN408G.
**Formerly:** SPAN408G.

**SPAN432 Colonial Latin American Literature (3 Credits)**
Examines the key themes, writers, literary movements, and cultural debates of the colonial period.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.

**SPAN433 Women and Culture in Colonial Latin America (3 Credits)**
Considers questions of women and historical production, women writers in colonial times, and contemporary literary interpretations of colonial realities. Debates the continued legacy of female archetypes from the colonial period to the present, and epistemological questions regarding the production of knowledge.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.

**SPAN434 The Usable Past: Reflecting on Archives in Contemporary Fictions and Films from the Southern Cone (3 Credits)**
Che Guevara on a t-shirt, Eva Peron in a Broadway musical, Bolivar as trans on a postcard, Gabriela Mistral on a peso bill, Pablo Neruda as a postman's friend, Frida Kahlo as a feminist icon, Artigas in a blues band ... The list goes on. Nevertheless, what all these cultural appropriations have in common is that the present has used the past to inscribe a functional narrative for that time. This course will not ask if we can know past events as they really happened, but rather it will explore how contemporary fictions, films, and visual art from the Southern Cone construct usable cultural archives for their present. Also, this seminar traces the ways in which contemporary authors, filmmakers, and visual artists reflect on the past in order to critically read their present. Concentrating on the past as both the subject of fiction and as a force for inscribing fiction, this seminar inscribes an approach to time that moves away from a linearity.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.
**Credit Only Granted for:** SPAN434 or SPAN408F.
**Formerly:** SPAN408F.
**Additional Information:** Taught in Spanish.

**SPAN435 Ecuador: Andean Spaces-Traversing the Colonial City and the Natural World (3 Credits)**
Introduces students to the history and cultures of Ecuador from the colonial period to the beginning of the 19th century. By studying the socio-spatial configuration of the colonial city as exemplified by Quito, students will be immersed in the art, architecture, and other rich cultural legacies of Ecuador. Quito, a World Heritage site, offers students visually stunning churches, monasteries, colonial squares, a famed tradition of Baroque painting and sculptures, and vibrant indigenous and mestizo communities. As a contrast, students will explore also travel narratives that represent the natural Andean world while visiting Quito's surrounding areas. This course will interrogate the European influence on urban design and representations of the landscape of the Americas. Understanding this colonial past enhances the understanding of the modern history of the Andean region and Latin America as a whole. The students will gain a full appreciation of the European and Indigenous living heritage that composes the region today. Taught in English.
**Cross-listed with:** ARTH472.
**Credit Only Granted for:** SPAN435, SPAN448E, ARTH472 or ARTH369E.
**Formerly:** SPAN448E and ARTH369E.

**SPAN436 Representations of Childhood and Youth in Latin American Literature and Film (3 Credits)**
Focuses on the representation of childhood and youth in films and works of fiction from various regions of the Spanish-speaking Americas, including Mexico, the Caribbean, the US, and Peru. We are going to read various short stories and novels, and watch two films, all of which develop in different ways the topics of childhood and youth. Taught in Spanish.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.

**SPAN437 Love, Science, Religion and the Pursuit of Criollo Independence in 18th-Century Mexico (3 Credits)**
Explores the 18th century from the periphery of traditionally studied centers of Enlightenment. By focusing on pre-independence Mexico, we will study the emergence of alternative scientific and religious discourses in an American context that leads to social and political changes at the onset of the 19th century. Students will watch the Mexican telenovela "Alborada" (2005-6), which fictionally explores many of the topics that are relevant for the course. Students will also read a variety of materials on the following subtopics: imperial designs, cultural production, inquisitional realities, medical discourse, individual and political rights, criollo consciousness, etc. All writing and discussion will be in Spanish. Taught in Spanish.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.
**Credit Only Granted for:** SPAN437 or SPAN408V.
**Formerly:** SPAN408V.

**SPAN438 Special Topics in Colonial Latin America (3 Credits)**
The conquest and colonization of the New World produced a textual corpus of invaluable importance for the foundation of Spanish American literary tradition. Special topics (themes, authors, debates, etc.) relevant to the Colonial period will be addressed.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.
**Repeatable to:** 9 credits if content differs.

**SPAN440 Speaking Up/Out: Women Writers and Feminist Social Movements in Contemporary Latin America (3 Credits)**
This seminar will explore how feminist subversion of naturalized power relationships has become a social force that is reshaping Latin American culture in the last several decades. Also, we will study how contemporary cultural artifacts contest value systems while rejecting entrenched hierarchies and norms. By reading contemporary women writers and by working on contemporary feminist social movements, this course will explore what the anthropologist Rita Segato has defined as "the war against women." Taught in Spanish.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.

**SPAN442 Detective Fiction in Latin America (3 Credits)**
Focuses on Latin American detective fiction, including novels and short stories, whodunits and thrillers. Detective fiction's origins are primarily from outside of Latin America. Therefore the course will also include important texts from other traditions, including the US, English, and French. Taught in Spanish.
**Prerequisite:** SPAN303; and SPAN311 or SPAN316; and one from (SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363) or permission of instructor.
**Credit Only Granted for:** SPAN408T or SPAN442.
**Formerly:** SPAN408T.

**SPAN448 Special Topics in Latin American Civilization (3 Credits)**
Intensive independent study of a selected topic related to Latin American civilization.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.
**Repeatable to:** 6 credits if content differs.

**SPAN449 Special Topics in Spanish Civilization (3 Credits)**
An intensive study of a selected topic related to Spanish civilization.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.
**Repeatable to:** 6 credits if content differs.

**SPAN450 The Hispanic Caribbean: What is a Beach? (3 Credits)**
Explores the Hispanic Caribbean as "island spaces" of multiple migrations and cultural identities, as sites of colonial experiences and post-colonial debates.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.
**Credit Only Granted for:** SPAN408C or SPAN450.
**Formerly:** SPAN408C.

**SPAN451 Paradise Lost: Cuban Cinematic Culture (3 Credits)**
Explores the cinematic journey of the Cuban revolution from socialist utopia to bitter disillusionment. Taking as a point of departure the national postulates of an "Imperfect Cinema" and the different theorizations of "New Latin American cinema," the course will concentrate on the emergence and development of Cuban cinematic culture that has taken place during the revolution. Our objective is to explore how art and politics collide to reveal contested visions of a social process. Visual materials will include films and documentaries. Readings will include selections from historiographic and literary works, as well as contemporary critical studies. Taught in Spanish
**Prerequisite:** One course from SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.
**Credit Only Granted for:** SPAN451 or SPAN408P.
**Formerly:** SPAN408P.

**SPAN452 Reflecting on Neoliberalism and Contemporary Southern Cone Culture (3 Credits)**
An exploration of how neoliberalism and its market-driven economy have shaped Latin American culture of the last decades. In particular, we will explore how contemporary cultural artifacts are inscribed into a value system that quantifies the unquantifiable, that is to say, a system that only values a book or an artist based on sales. In this class, we will work with a variety of cultural artifacts from Argentina, Chile, and Uruguay--films, chronicles, music, newspapers, cartoons, literature, and documentaries--to map how culture and markets intersect. Taught in Spanish.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.
**Credit Only Granted for:** SPAN452 or SPAN448T.
**Formerly:** SPAN448T.

**SPAN453 Seeking Adventure and Glory: Don Quixote (3 Credits)**
Widely acknowledged as the first modern novel, Don Quixote tells the story of a middle-aged Spanish gentleman who, obsessed with the chivalrous ideals found in romantic tales, decides to take up his lance and sword to defend the helpless and destroy the wicked. Seated upon his horse Rocinante and accompanied by his loyal squire Sancho Panza, Don Quixote sets out on the roads of Spain seeking adventure and glory. The course will consist of a close reading of Don Quixote. We will analyze and comment on the novel at the literal and historical levels, as well as in its symbolic and widely anthropological dimensions. We will also establish a dialogue between Don Quixote and the narrative and philosophical traditions of Europe, United States and Latin America. Taught in Spanish.
**Prerequisite:** One of the following: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.
**Credit Only Granted for:** SPAN430 or SPAN453.
**Formerly:** SPAN430.

**SPAN456 Construction of Gender and Sexuality in the Spanish Realist-Naturalist Novel (3 Credits)**
Examines 19th-century Spanish normative notions regarding gender expression and identities as well as men's and women's sexualities in the Realist and Naturalist novel. Also, we will discuss representations of men and women whose behavior ran afoul of a heteronormative system that valued domestic privacy as a space of honor and virtuous masculinity and femininity. Taught in Spanish.
**Prerequisite:** One of the following: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.
**Recommended:** SPAN333.

**SPAN457 Comedy, Foppery, and Foreignness in Eighteenth-Century Spain (3 Credits)**
We will explore the comical and satirical elements in 18th-century Spanish literary works, situating them within the social and historical context of the aesthetic tastes of the Spanish reading public and how those tastes impacted the production of literature and other cultural artifacts. Taught in Spanish.
**Prerequisite:** One of the following: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.
**Recommended:** SPAN333.

**SPAN460 The Sublime and the Grotesque in Spanish Romantic Plays and the Visual Arts (3 Credits)**
An exploration of the notions of the sublime and the grotesque in theatrical works as well as in the visual arts of the Romantic movement in Spain. Taught in Spanish.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.

**SPAN461 Queer Spain (3 Credits)**
Explores discursive representations of Spaniards who were judged as non-normative by their society during the modern and contemporary period. Putting a critical lens to various cultural artifacts (visual arts, fiction, film, and journalism), we will interrogate what it means to be "(ab)normal" in terms of gender expression, erotic desire, sexuality, and anatomical sex in Spain at critical junctures in modern history. Taught in Spanish.
**Prerequisite:** One of the following: SPAN331, SPAN332, SPAN333, SPAN361, SPAN362 or SPAN363; or permission of instructor.
**Recommended:** SPAN333.
**Credit Only Granted for:** SPAN408A or SPAN461.
**Formerly:** SPAN408A.

**SPAN462 Twentieth Century Drama (3 Credits)**
Significant plays of the twentieth century.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.

**SPAN463 Cultural Artifacts of Contemporary Spanish Crises from 1898 to the COVID Pandemic (3 Credits)**
An overview of Spain from the end of the 19th century through the present day and studies some of its main crises. The course explores the production of literary, cultural, and cinematic texts in their sociohistorical, political, religious and cultural contexts and development. This interdisciplinary course covers topics such as political, historical, religious, racial, ethnic, gendered/sexual, cultural, and ethno-geographical, literary and cinematic diversities and differences in Contemporary Spain. Taught in Spanish.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.

**SPAN464 Contemporary Spanish Poetry (3 Credits)**
Spanish poetry from the generation of 1927 to the present.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.

**SPAN465 Spanish Exiles and Totalitarianisms (3 Credits)**
An overview of the cultural and literary production regarding the Spanish Civil War (1936-1939) and its aftermath in the context of political exile from the early 20th century through present-day Spain. The course explores the production of literary texts in their sociohistorical, political, and cultural contexts and development as a reflection of that crisis in the conscience of present-day Spain. This interdisciplinary course covers topics such as political, historical, religious, racial, ethnic, gendered/sexual, cultural, and ethno-geographical diversities and differences concerning the Spanish Civil War and its aftermath. Taught in Spanish.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.
**Recommended:** SPAN333.

**SPAN466 The Contemporary Spanish Novel (3 Credits)**
The novel and the short story from 1940 to the present.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.

**SPAN467 Visions and Fictions from Spain (3 Credits)**
Overview of Spanish cinema from the end of the 19th century through present day Spain. Exploration of the production of literary and cinematic texts in their social, historical, political, religious, and cultural contexts.
**Prerequisite:** One course from SPAN331, SPAN332, SPAN333, SPAN361, SPAN362 or SPAN363; or permission of instructor.
**Recommended:** SPAN333.
**Cross-listed with:** CINE467.
**Credit Only Granted for:** CINE427, CINE467, FILM427, SPAN427, or SPAN467.
**Formerly:** FILM427, CINE427, and SPAN427.

**SPAN468 Modernism and Post-Modernism in Spain and Spanish-America (3 Credits)**
A study of the most important works and authors of both movements in Spain and Spanish-America.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.
**Repeatable to:** 9 credits if content differs.

**SPAN469 Study Abroad Special Topics IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**SPAN471 United States Latina Fiction (3 Credits)**
An introduction to United States latina fiction through the study of short stories, novels, poetry, etc. It explores strategies of representation by women of color.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.

**SPAN472 Latina/o Communities and Language Struggles (3 Credits)**
Explores the history of Latina/o communities and their language "choices," negotiations, and struggles in the United States, starting with the Spanish conquest of North America through the 21st century. We examine the lasting impact of the War of 1848 by which the U.S. colonized the southwest and consider how the Spanish-American War of 1898 imposed U.S. rule in the Hispanophone Caribbean. In this context of struggle, we examine how language repression and expression gave voice to the Latinx civil rights movements in the 1960s and 1970s as well as current immigration and education movements. Texts include Spanish cronicas, U.S. political treaties, the Hispanic press, manifestos, novels, poetry, spoken word, film, music, among others. Course format consists of lectures, discussions, group work, short essays, presentations, and examinations. Students should expect to participate in a community engagement project. Taught in Spanish and discussions in Spanglish.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of the instructor.
**Credit Only Granted for:** SPAN408T or SPAN472.
**Formerly:** SPAN408T.

**SPAN473 U.S. Latino Performance (3 Credits)**
An introduction to United States Latino Performance texts by Chicano, Nuyorican, Cuban-American, Dominican, Central-American and others.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.

**SPAN474 Central American Literatures, Cultures, and Histories (3 Credits)**
An overview of Central American history and cultural production, focusing primarily but not exclusively on literary texts.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.

**SPAN475 Central America: 21st-Century Literature & Culture (3 Credits)**
Explores the discursive construction of Central America in the 21st century, from banana republic to northern triangle. While we study issues of violence, crime, feminicide, impunity, corruption, migration, human and drug trafficking, and climate change, we will moreover focus on people's struggles for equality, human rights, environmental justice, food security, healthcare, education, and employment in the region. We seek to understand the root cause of local and global conditions in Central America as well as the creative and resilient ways that Central Americans respond to them. Texts include novels, short stories, cronicas, news, films, photography, and other re/sources. Course format consists of lectures, discussions, group work, short essays, presentations, and examinations. Students should expect to participate in a community engagement project. Taught in Spanish and discussions in Spanglish.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.
**Credit Only Granted for:** SPAN408L or SPAN475.
**Formerly:** SPAN408L.

**SPAN476 Central Americans in the DMV (3 Credits)**
Explores the history, migration, and cultural representation of Central Americans in the DMV (DC, Maryland, and Virginia) in the larger context of transnational relations between Central America and the United States. We ask how and why the DMV is home to one of the largest concentrations of Central Americans, especially Salvadorans, in the nation, as well as examine the diaspora as a transnational process. We study plays, short stories, poetry, spoken word/ performances, films, music, photography, zines, social media, and other interdisciplinary re/sources, and engage one-on-one with local and international artists, activists, and community organizations. Course format consists of lectures, discussions, group work, short essays, presentations, and examinations. Students should expect to participate in a community engagement project. Taught in Spanish and discussions in Spanglish.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.
**Credit Only Granted for:** SPAN408W or SPAN476.
**Formerly:** SPAN408W.

**SPAN477 Between Worlds: Central American Diasporas (3 Credits)**
Examines Central America as a locus of diasporas, from its geological formation as an isthmus to the current movement of peoples across El Salvador, Guatemala, Nicaragua, Honduras, Costa Rica, Panama, Belize, and beyond. It offers a broadscale view of Central American societies, histories, (geo)politics, social and revolutionary movements, and cultural and literary production, and situates diasporic literature in relation to migration, war, genocide, violence, transnationalism, globalization, among others. Because the Washington, D.C. Metropolitan Area is a significant site of the Central American diasporas, we will explore our particular location and engage with local diasporic communities. Course format consists of lectures, discussions, group work, short essays, presentations, and examinations. Students should expect to participate in a community engagement project. Taught in Spanish and discussions in Spanglish.
**Prerequisite:** SPAN331, SPAN332, SPAN333, SPAN361, SPAN362, or SPAN363; or permission of instructor.
**Credit Only Granted for:** SPAN408R or SPAN477.
**Formerly:** SPAN408R.

**SPAN478 Special Topics in United States Latino Cultures (3 Credits)**
Explores special topics in US Latino Cultures, ranging from Chicano, Nuyorican, Cuban-American, Dominican, Central-American and other border cultural identities.
**Prerequisite:** SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.
**Repeatable to:** 9 credits if content differs.

**SPAN479 Honors Thesis (3-6 Credits)**
Researching and writing an honors thesis under the direction of a professor.
**Restriction:** Must be in Spanish and Portuguese Honors.
**Repeatable to:** 6 credits if content differs.

**SPAN480 Spanish for Business II (3 Credits)**
Business Spanish terminology, vocabulary and practice. Emphasis on everyday spoken and written Spanish. Readings and discussions of international topics. Cross-cultural considerations relative to international business operations, including exporting and banking. Taught in Spanish.
**Prerequisite:** Must have completed SPAN370.
**Restriction:** Sophomore standing or higher.
**Credit Only Granted for:** SPAN470 or SPAN480.

**SPAN495 Honors Reading (3 Credits)**
Supervised reading.
**Prerequisite:** Must be in Spanish and Portuguese Honors; or permission of ARHU-School of Languages, Literatures, and Cultures department.

# SPAX - Spanish Education Abroad

**SPAX100 Intensive Elementary Spanish I A1 (6 Credits)**
This intensive introductory course offers significant exposure to the Spanish language and creates many opportunities to practice language skills. The course covers an introduction to the Spanish alphabet and fundamental skills including reading, writing, listening, and speaking. Students will be able to introduce themselves and be familiar with everyday expressions and basic phrases.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**SPAX101 Elementary Spanish I A1 (3 Credits)**
This introductory course covers an introduction to the Spanish alphabet and fundamental skills including reading, writing, listening, and speaking. Students will be able to introduce themselves and be familiar with everyday expressions and basic phrases.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**SPAX102 Intensive Elementary Spanish II A2 (6 Credits)**
This intensive elementary course offers significant exposure to the Spanish language and creates many opportunities to practice language skills. The course covers Spanish language intonations, reading, writing, listening, and conversational Spanish. Students will be able to understand sentences and frequently used expressions related to areas of most immediate relevance.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**SPAX103 Elementary Spanish II A2 (3 Credits)**
This course covers Spanish language intonations, reading, writing, listening, and conversational Spanish. Students will be able to understand sentences and frequently used expressions related to areas of most immediate relevance.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**SPAX200 Intensive Intermediate Spanish I B1.1 (6 Credits)**
This intensive intermediate course offers significant exposure to the Spanish language and creates many opportunities to practice language skills. The course covers pronunciation, expression, reading comprehension, writing, and culture of the Spanish-speaking world. Students will be able to deal with most situations likely to arise while travelling in a Spanish-speaking region and produce simple connected text on topics that are familiar or of personal interest.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**SPAX201 Intermediate Spanish I B1.1 (3 Credits)**
This intermediate course covers pronunciation, expression, reading comprehension, writing, and culture of the Spanish-speaking world. Students will be able to deal with most situations likely to arise while travelling in a Spanish-speaking region and produce simple connected text on topics that are familiar or of personal interest.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**SPAX202 Intensive Intermediate Spanish II B1.2 (6 Credits)**
This intensive intermediate course offers significant exposure to the Spanish language and creates many opportunities to practice language skills. The course covers communicating with confidence, understanding and writing short texts, and various grammatical structures. Students will be able to describe experiences and events, dreams, hopes and ambitions and briefly give reasons and explanations for opinions and plans.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**SPAX203 Intermediate Spanish II B1.2 (3 Credits)**
This intermediate course covers communicating with confidence, understanding and writing short texts, and various grammatical structures. Students will be able to describe experiences and events, dreams, hopes and ambitions and briefly give reasons and explanations for opinions and plans.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**SPAX300 Intensive Upper Intermediate Spanish I B2.1 (6 Credits)**
This intensive upper intermediate course offers significant exposure to the Spanish language and creates many opportunities to practice language skills. The course covers more advanced reading and listening comprehension, with a focus on Spanish and Latin American authors; covers more advanced speaking, such as discussions and debates, as well as writing letters, reports, and essays. Students will be able to produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**SPAX301 Upper Intermediate Spanish I B2.1 (3 Credits)**
This upper intermediate course covers more advanced reading and listening comprehension, with a focus on Spanish and Latin American authors; covers more advanced speaking, such as discussions and debates, as well as writing letters, reports, and essays. Students will be able to produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**SPAX302 Intensive Upper Intermediate Spanish II B2.2 (6 Credits)**
This intensive upper intermediate course offers significant exposure to the Spanish language and creates many opportunities to practice language skills. Students will be able to take part in conversations with native speakers with little or no difficulty and no grammatical errors and using acceptable pronunciation. Students achieving this level are able to handle literary texts and documents on any subject in their field of interest, and write complex texts with very few errors.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**SPAX303 Upper Intermediate Spanish II B2.2 (3 Credits)**
This upper intermediate course will allow students to be able to take part in conversations with native speakers with little or no difficulty and no grammatical errors and using acceptable pronunciation. Students achieving this level are able to handle literary texts and documents on any subject in their field of interest, and write complex texts with very few errors.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**SPAX306 Intensive Advanced Spanish I C1.1 (6 Credits)**
This intensive advanced course offers significant exposure to the Spanish language and creates many opportunities to practice language skills. Students will be able to understand a wide range of demanding, longer clauses, and recognize implicit meaning as well as express ideas fluently and spontaneously without much obvious searching for expressions.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**SPAX307 Intensive Advanced Spanish II C1.2 (6 Credits)**
This intensive advanced course offers significant exposure to the Spanish language and creates many opportunities to practice language skills. Students will be able to use language flexibly and effectively for social, academic and professional purposes as well as produce clear, well-structured, detailed text on complex subjects, showing controlled use of organizational patterns, connectors and cohesive devices.
**Additional Information:** This course is offered as part of the Maryland-in-Barcelona study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMBarcelona. Education Abroad processes registrations for this course on behalf of students.

**SPAX312 Spanish Conversation and Oral Skills I (3 Credits)**
Augments student linguistic competence with a special focus on oral skills and linguistic functions. Students will develop the oral abilities and strategies needed to accomplish meaningful interactions with people from the local community with ease and confidence.
**Additional Information:** This course is offered as part of the USAC Chile study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/10009. Education Abroad processes registrations for this course on behalf of students.

# SPHL - Public Health

**SPHL100 Foundations of Public Health (3 Credits)**
An overview of the goals, functions, and methods of public health. After an introduction to the core concepts and tools used in public health research and practice, applications of these methodologies are considered in the context of current controversies/problems in public health. Students work together to develop strategies for prevention and control that take into consideration different points of view, outside research, and impacts on individuals and communities.
**Restriction:** Must be in a major in SPHL-School of Public Health.
**Credit Only Granted for:** SPHL100, PHSC300 or SPHL600.

**SPHL240 Public Health Engagement (2 Credits)**
Public Health Engagement is a transfer transition course that provides an opportunity for transfer students to engage in the professional culture of the public health field and to build community while navigating a large, public institution. Instructors use research, physical activity, and academic engagement to stimulate community building across all majors within the School of Public Health. Students will engage with public health issues, academic resources, solution-driven grant writing, identity development, faculty and alumni support systems, and group and individual physical activities. A partnership of 3 sectors within the school, this course is taught by an interdisciplinary team fostering public health practice and community building while promoting successful transition, integration and retention.
**Restriction:** Must be a transfer student with 60 credits or less; and must be in a major in SPHL-School of Public Health.
**Additional Information:** The course will include a significant physical activity component.

**SPHL246 Terp Restoration (1 Credit)**
This lab course is designed to assist students in improving academic strategies, learning time management practices, interacting with the faculty and greater campus community, and developing professional career aspirations. The focus will be on an exploration of the academic environment, campus resources, self-discovery tools, and skill development. Utilizing an interactive experience through facilitated discussion that develops positive relationships, students will actively explore academic opportunities offered through the School of Public Health and the University of Maryland.
**Restriction:** Students must be undergraduate majors within the School of Public Health; and permission of instructor.

**SPHL260 Public Health Beyond Borders: Designing Culturally Competent Global Projects (3 Credits)**
The skills learned in this course are intended to engage students in critical thinking prior to a study abroad, global health project, or other international service experience in such a way that adds depth for the student and minimizes unintended negative consequences for local communities. The course is designed in three parts to prepare students to think critically about reciprocity in international service projects and develop scholarship in practice. Community members are viewed as partners, educators, and trusted advisors. Furthermore, since global health projects begin long before the plane lands, money is exchanged, and the first of many plastic bottles of water is purchased, the course begins with broad definitions of key concepts to heighten awareness of unintended consequences of well-meaning volunteers, then leads students through reflection and writing to apply these concepts and provides opportunity to integrate key concepts into plans for projects that serve global communities with cultural competence. Students will explore the needs of global communities, design interventions, and reflect on the potential outcomes in improving health in the communities served, while also focusing on their own subjective experience.

**SPHL291 Does Science Support Nontraditional Healing Practices? (3 Credits)**
Does yoga improve the health of wounded warriors and/or breast cancer survivors? Can mindfulness enhance your business success and family relationships, or is it social media hype? Do you know what reflexology is, and does it help reduce your personal stress level? Increasing numbers of people are using nutritional supplements, meditation, yoga and other forms of exercise, acupuncture and experiences in nature to reduce stress levels and improve overall health and well-being. In the media, scientists to celebrities have alternately endorsed or rejected claims about how these and other nontraditional health practices benefit health and well-being. Students will sample some of these nontraditional health practices and explore whether these practices can enhance their own well-being. General scientific methods for health research will be introduced and students will use this knowledge to evaluate the existing scientific research on these practices. Students will also evaluate whether popular and media translation of scientific research on these practices is fact-based.
**Recommended:** Successful completion of English composition course.

**SPHL298 SPH Ambassador Program (1 Credit)**
The purpose of this course is to train students in the methods related to advising, teaching and leading undergraduate current and prospective students. At the end of the course ambassdors will be a resource to these new students in SPH through their knowledge of academic planning, college/university policy, and understanding of what SPH has to offer. Ambassados will have experience working one on one with students who have academic advising questions and concerns. They will develop better public speaking skills and know how to impart new information in an effective way to undergraduate students.
**Restriction:** Must be in a major in SPHL-School of Public Health; and minimum cumulative GPA of 2.7; and must have earned less then 90 credits.
**Repeatable to:** 6 credits.

**SPHL333 Fundamentals of Undergraduate Teaching for Education Assistants and Mentors (UTEAM) (1 Credit)**
Supports the professional and personal development of UG students in the UTEAM program. Must be completed concurrently with the first semester of providing UTEAM support to a specific course. UTEAM members are dedicated student learners who provide peer education support for specific course as part of the teaching team and emphasizes: 1) introduction to teaching, learning, literature and practice, 2) collaboration with other UTEAM members, faculty and staff as a learning community, and 3) reflection on the knowledge and skills developed through course participation.
**Corequisite:** SPHL399.
**Restriction:** Permission of the instructor; and permission of the School of Public Health.
**Additional Information:** This course must be taken concurrently with SPHL399 the first term in which a student is a UTA. Preference is given to students within an SPHL major.

**SPHL386 Experiential Learning (3 Credits)**
**Prerequisite:** Permission of SPHL-School of Public Health.

**SPHL399 Academic Peer Teaching and Mentoring in Public Health (1-3 Credits)**
An independent study course for the Undergraduate Teaching and Mentoring (UTEAM) program within the School of Public Health. Students will apply evidence-based research while assisting peers with the understanding and application of course content. Specific responsibilities may vary dependent upon the course instructor. The primary roles of the UTEAM members will be to provide in-class support and/or external course support through review sessions, discussions sessions, laboratory support, group tutoring and office hours.
**Corequisite:** If this course is being taken for the first time, students must concurrently register for SPHL333.
**Restriction:** Permission of the instructor; and permission of the School of Public Health.
**Repeatable to:** 6 credits if content differs.
**Additional Information:** Preference is given to students within an SPHL major.

**SPHL478 Special Topics in Public Health (1-4 Credits)**
Special topics in the field of public health.
**Repeatable to:** 8 credits if content differs.

**SPHL488 Children's Health and Development Clinic (1-4 Credits)**
An opportunity to acquire training and experience in a therapeutically oriented physical education-recreation program for children referred by various education, special education, medical or psychiatric groups.
**Prerequisite:** Permission of SPHL-School of Public Health.

**SPHL498 Special Topics in Public Health (3 Credits)**
Topical and interdisciplinary courses of interest to upper level undergraduate students in the field of Public Health not currently covered by the program.
**Restriction:** Junior standing or higher.
**Repeatable to:** 9 credits if content differs.
**Credit Only Granted for:** SPHL498 or SPHL698 of same suffix.

# STAT - Statistics and Probability

**STAT100 Elementary Statistics and Probability (3 Credits)**
Simplest tests of statistical hypotheses; applications to before-and-after and matched pair studies. Events, probability, combinations, independence. Binomial probabilities, confidence limits. Random variables, expected values, median, variance. Tests based on ranks. Law of large numbers, normal approximation. Estimates of mean and variance.
**Prerequisite:** MATH110, MATH112, MATH113, or MATH115; or permission of CMNS-Mathematics department; or must have math eligibility of STAT100 or higher and math eligibility is based on the Math Placement Exam or the successful completion of Math 003 with appropriate eligibility.
**Cross-listed with:** DATA100.
**Restriction:** Must not have completed MATH111; or must not have completed any STAT course with a prerequisite of MATH141.
**Credit Only Granted for:** DATA100 or STAT100.

**STAT110 Applications of R for Data Science (1 Credit)**
Intended to prepare students for subsequent courses requiring computation with R, providing powerful and easy to use tools for statistical data analysis. Covers basics of R and R Studio including file handling, data simulation, graphical displays, vector and function operations, probability distributions, and inferential techniques for data analysis.
**Prerequisite:** DATA100, STAT100, or MATH135; or any 400-level STAT course.
**Cross-listed with:** DATA110.
**Credit Only Granted for:** STAT110 or DATA110.

**STAT386 Experiential Learning (3-6 Credits)**
**Prerequisite:** Must have learning proposal approved by the CMNS-Mathematics Department.

**STAT400 Applied Probability and Statistics I (3 Credits)**
Random variables, standard distributions, moments, law of large numbers and central limit theorem. Sampling methods, estimation of parameters, testing of hypotheses.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH131, MATH141); or students who have taken courses with comparable content may contact the department.
**Cross-listed with:** DATA400.
**Credit Only Granted for:** DATA400, ENEE324, or STAT400.
**Additional Information:** Not acceptable toward graduate degrees in MATH/STAT/AMSC.

**STAT401 Applied Probability and Statistics II (3 Credits)**
Point estimation - unbiased and consistent estimators. Interval estimation. Minimum variance and maximum likelihood estimators. Testing of hypotheses. Regression, correlation and analysis of variance. Sampling distributions. Elements of non-parametric methods.
**Prerequisite:** 1 course with a minimum grade of C- from (STAT400, STAT410).
**Additional Information:** Not acceptable toward graduate degrees in MATH/STAT/AMSC.

**STAT410 Introduction to Probability Theory (3 Credits)**
Probability and its properties. Random variables and distribution functions in one and several dimensions. Moments. Characteristic functions. Limit theorems.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and 1 course with a minimum grade of C- from (MATH340, MATH241).
**Cross-listed with:** SURV410.
**Credit Only Granted for:** STAT410 or SURV410.

**STAT420 Theory and Methods of Statistics (3 Credits)**
Point estimation, sufficiency, completeness, Cramer-Rao inequality, maximum likelihood. Confidence intervals for parameters of normal distribution. Hypothesis testing, most powerful tests, likelihood ratio tests. Chi-square tests, analysis of variance, regression, correlation. Nonparametric methods.
**Prerequisite:** 1 course with a minimum grade of C- from (SURV410, STAT410).
**Cross-listed with:** SURV420.
**Credit Only Granted for:** STAT420 or SURV420.

**STAT422 Probability Models (3 Credits)**
Random variables, Joint Distributions, Hierarchical Models, Random Samples, Algorithms for generating samples, Markov Chains, Poisson Processes, Stochastic Processes, Simulations.
**Prerequisite:** STAT400 or STAT410.
**Credit Only Granted for:** STAT498J or STAT422.
**Formerly:** STAT498J.

**STAT426 Introduction to Data Science and Machine Learning (3 Credits)**
An introductory course to the recent developments in the fields of data science and machine learning. Emphasis will be given to mathematical and statistical understanding of commonly used methods and processes.
**Prerequisite:** Minimum grade of C- in MATH241 or MATH340; and minimum grade of C- in MATH240, MATH461 or MATH341; and minimum grade of C- in STAT400 or STAT410; students who have taken courses with content comparable to STAT400/410 may request permission of the instructor.
**Credit Only Granted for:** STAT426 or CMSC320.

**STAT430 Introduction to Statistical Computing with SAS (3 Credits)**
Descriptive and inferential statistics. SAS software: numerical and graphical data summaries; merging, sorting and splitting data sets. Least squares, regression, graphics and informal diagnostics, interpreting results. Categorical data, lifetime data, time series. Applications to engineering, life science, business and social science.
**Prerequisite:** 1 course with a minimum grade of C- from (STAT400, STAT410); and must have completed or be concurrently enrolled in STAT401 or STAT420; students who do not meet the STAT401 or STAT420 requirement but who have taken a statistics course may contact the math department to confirm eligibility.

**STAT440 Sampling Theory (3 Credits)**
Simple random sampling. Sampling for proportions. Estimation of sample size. Sampling with varying probabilities. Sampling: stratified, systematic, cluster, double, sequential, incomplete.
**Prerequisite:** 1 course with a minimum grade of C- from (STAT401, STAT420).
**Credit Only Granted for:** STAT440 or SURV440.

**STAT464 Introduction to Biostatistics (3 Credits)**
Probabilistic models. Sampling. Some applications of probability in genetics. Experimental designs. Estimation of effects of treatments. Comparative experiments. Fisher-Irwin test. Wilcoxon tests for paired comparisons.
**Prerequisite:** Must have completed one semester of calculus.
**Restriction:** Junior standing or higher.
**Credit Only Granted for:** BIOE372 or STAT464.
**Additional Information:** Not acceptable toward degrees in MATH/STAT.

**STAT470 Actuarial Mathematics (3 Credits)**
Major mathematical ideas involved in calculation of life insurance premiums, including compound interest and present valuation of future income streams; probability distribution and expected values derived from life tables; the interpolation of probability distributions from values estimated at one-year multiples; the 'Law of Large Numbers' describing the regular probabilistic behavior of large populations of independent individuals; and the detailed calculation of expected present values arising in insurance problems.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and 1 course with a minimum grade of C- from (MATH340, MATH241).
**Recommended:** STAT400.

**STAT498 Selected Topics in Statistics (1-6 Credits)**
Topics of special interest to advanced undergraduate students will be offered occasionally under the general guidance of the MATH/STAT major committee. Students register for reading in statistics under this number.
**Restriction:** Permission of CMNS-Mathematics department.
**Repeatable to:** 16 credits.

# SURV - Survey and Data Science

**SURV400 Fundamentals of Survey and Data Science (3 Credits)**
The course introduces the student to a set of principles of survey and data science that are the basis of standard practices in these fields. The course exposes the student to key terminology and concepts of collecting and analyzing data from surveys and other data sources to gain insights and to test hypotheses about the nature of human and social behavior and interaction. It will also present a framework that will allow the student to evaluate the influence of different error sources on the quality of data.
**Prerequisite:** STAT100; or permission of BSOS-Joint Program in Survey Methodology department.
**Restriction:** Course open to SURV certificate students, SURV Advanced Special Students, and SURV undergraduate minors. Graduate students from other departments may enroll with permission from the department.
**Credit Only Granted for:** SURV699M or SURV400.
**Formerly:** SURV699M.

**SURV410 Introduction to Probability Theory (3 Credits)**
Probability and its properties. Random variables and distribution functions in one and several dimensions. Moments. Characteristic functions. Limit theorems.
**Prerequisite:** 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and 1 course with a minimum grade of C- from (MATH340, MATH241).
**Cross-listed with:** STAT410.
**Credit Only Granted for:** STAT410 or SURV410.

**SURV420 Theory and Methods of Statistics (3 Credits)**
Point estimation, sufficiency, completeness, Cramer-Rao inequality, maximum likelihood. Confidence intervals for parameters of normal distribution. Hypothesis testing, most powerful tests, likelihood ratio tests. Chi-square tests, analysis of variance, regression, correlation. Nonparametric methods.
**Prerequisite:** 1 course with a minimum grade of C- from (SURV410, STAT410).
**Cross-listed with:** STAT420.
**Credit Only Granted for:** STAT420 or SURV420.

**SURV430 Fundamentals of Questionnaire Design (3 Credits)**
Introduction to the scientific literature on the design, testing and evaluation of survey questionnaires, together with hands-on application of the methods discussed in class.
**Restriction:** Permission of BSOS-Joint Program in Survey Methodology department.
**Credit Only Granted for:** SURV430 or SURV630.

**SURV440 Sampling Theory (3 Credits)**
Simple random sampling, sampling for proportions, estimation of sample size, sampling with varying probabilities of selection, stratification, systematic selection, cluster sampling, double sampling, and sequential sampling.
**Prerequisite:** STAT401 or STAT420.
**Credit Only Granted for:** STAT440 or SURV440.

# TDPS - Theatre, Dance and Performance Studies

**TDPS201 Introduction to Technical Production (3 Credits)**
Students are provided with an overview of topics related to the technical production of theatre and dance including: scenic, prop and costume construction, lighting, sound and video execution and management structures.
**Restriction:** Must be in a major within the ARHU-Dance department; or must be in a major within the ARHU-Theatre department.
**Credit Only Granted for:** DANC210 and THET114 or TDPS201.
**Formerly:** DANC210 and THET114.

**TDPS258 Special Topics in Introductory Performing Arts (1-3 Credits)**
Designed for performing arts students. Offers instruction at the introductory level in various aspects of performance such as Voice for the Performing Arts, Movement for the Performing Arts, Acting for the Performing Arts, Partner Dance and a myriad of specific aspects within these genres.
**Prerequisite:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 9 credits if content differs.

**TDPS358 Special Topics in Intermediate Performing Arts (1-3 Credits)**
Designed for performing arts students. Offers instruction at the intermediate level in various aspects of performance such as Voice for the Performing Arts, Movement for the Performing Arts, Acting for the Performing Arts, Partner Dance and a myriad of specific aspects within these genres.
**Prerequisite:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 9 credits if content differs.

**TDPS358A Theatre and Dance in Iran and Afghanistan (3 Credits)**
Students will learn about stories, plays, and movements in Iran and Afghanistan from past to present. Through watching performances, readings, and discussions, we explore the relationship between storytelling, body, space, and power in forming and performing identity and life experiences. Looking at case studies from traditional, popular, and western style dance and theater are an exciting part of the course. Note: This course requires no prior knowledge of Persian culture or dance and theatre studies on the part of the students.
**Cross-listed with:** PERS385, THET328W.
**Repeatable to:** 3 credits if content differs.
**Credit Only Granted for:** TDPS358A, THET328W, PERS398A, or PERS385.
**Formerly:** PERS398A.

**TDPS362 Alexander Technique (1-3 Credits)**
Based on the F.M. Alexander Technique, students will learn to recognize habit patterns that interfere with how they function and express themselves so that they can make conscious choices as a performing artist.
**Prerequisite:** THET222, THET116, THET223, and TDPS201; or (DANC218 and DANC219). And permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Credit Only Granted for:** THET399J, THET362 or TDPS362.
**Formerly:** THET399J and THET362.

**TDPS408 Seminar in Theory and Practice of Critical Difference (3 Credits)**
This interdisciplinary seminar examines expressive culture as performed in works of dance, theatre, music, and digital media.
**Repeatable to:** 6 credits if content differs.

**TDPS440 Arts Leadership Seminar (3 Credits)**
An advanced seminar in arts leadership exposing students to the foundations of arts leadership in not-for-profit organizations as it intersects with current trends in technology, demographics, government policy, and the economy. In case studies based on examples drawn from local arts organizations, students will learn about audience engagement as well as institutional development terminology and best practices.
**Cross-listed with:** ARHU440.
**Credit Only Granted for:** TDPS440 or ARHU440.

**TDPS458 Special Topics in Advanced Performing Arts (1-3 Credits)**
Designed for performing arts students. Offers instruction at an advanced level in various aspects of performance such as Voice for the Performing Arts, Movement for the Performing Arts, Acting for the Performing Arts, Partner Dance and a myriad of specific aspects within these genres.
**Prerequisite:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 9 credits if content differs.

**TDPS469 Advanced Practicum in Stage Management (1-3 Credits)**
A graded course in stage management for theatre and/or dance productions. A hands-on laboratory experience.
**Prerequisite:** Minimum of 2 credits from TDPS479.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 9 credits.

**TDPS470 Production Management (3 Credits)**
To familiarize students with techniques and skills required of a Production Manager in a theatrical production. Focus will also be given to the field of event management.
**Prerequisite:** TDPS201, THET222, THET223, and THET116; and permission of ARHU-School of Theatre, Dance & Performance Studies department.

**TDPS479 Production Practicum (1-3 Credits)**
A graded course in a specified practical aspect of mounting a theatre or dance production. It is a hands-on, purely laboratory experience.
**Prerequisite:** TDPS201.
**Repeatable to:** 10 credits if content differs.
**Credit Only Granted for:** TDPS479 or THET479.
**Formerly:** THET479.

# THET - Theatre

**THET110 Introduction to the Theatre (3 Credits)**
In the age of pop music and blockbuster films, of memes and viral videos, we often forget that theatre was one of the original forms of popular entertainment. We will focus on theatre practitioners including actors, directors, designers and backstage personnel to understand how theatre is produced. We will also consider popular entertainment in Europe and America, with a particular focus on musical theatre and Broadway to explore how theatre communicates, resonates, and remains relevant to all audiences.

**THET116 Fundamentals of Theatrical Design (3 Credits)**
Examines theatre as an environmental art that is realized through collaboration between set, costume, and lighting designers.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET120 Introduction to Acting (3 Credits)**
Through scene study, exercises, and improvisation, an appreciation is developed for the working habits of actors, which will aid them in rehearsal as well as performance.
**Restriction:** Must not be in Theatre program.

**THET199 Independent Study (1-3 Credits)**
An independent study in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers, scenic, lighting, or costume designs, or a stage production.
**Restriction:** Permission of instructor; and freshman standing.
**Repeatable to:** 6 credits if content differs.

**THET222 Foundations of Acting and Performance (3 Credits)**
Students will become familiar with the tools and process of acting through the discipline of acting exercises, analyzing character and performing. Students will research various theatre artists that have contributed to the acting process. Through monologue and scene work students will learn listening skills, communicative, collaborative and embodiment skills and will learn how to use the self in the imaginative process and research. And, most importantly, students will learn creative process through practice.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET223 Text and Context in Western Theatre (3 Credits)**
Introduction to the analysis and critique of the play script. Students will have the opportunity to read, analyze, and interpret western dramatic literature from a range of periods and styles. Texts are analyzed from a variety of theatrical analytical perspectives, with an eye towards choices theatre artists must make in the creation of a theatrical production.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET228 Special Topics in Introduction Theatre and Performance (1-3 Credits)**
This course is offered as part of the TDPS Artist-in-Residence program. Topics covered may include: Intercultural Theatre; Performance Art; Puppetry; Solo Performance; or Theatrical Design.
**Prerequisite:** THET114 or TDPS201; and (THET116, THET222, and THET223); and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 3 credits if content differs.

**THET251 Broadway Mashup: Remixing America Through Musical Theater (3 Credits)**
Interrogate musical theater's political history, investigating how this uniquely American genre uses narrative, song, and dance to weave critical differences across race, ethnicity, immigration status, religion, gender, sexuality, and ability into our national fabric.

**THET269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**THET274 Introduction to Stage Management (3 Credits)**
Familiarization with the techniques and skills required of a Stage Manager in a theatrical production, including organization, production meetings, rehearsals, tech and running a show. The outcome at the conclusion of the course is the ability to function as an Assistant Stage Manager in a supervised situation.
**Prerequisite:** THET114 or TDPS201; and permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET279 Theatre Workshop I (1 Credit)**
Supervised participation in backstage staffing of University Theatre productions.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits if content differs.

**THET282 Stage Makeup (3 Credits)**
Students learn to design and execute character makeup based on research and script analysis. Studying fundamental facial anatomy, the class learns to manipulate light and shadow with makeup to enhance and alter the shape of facial features. Once these techniques are mastered, the class moves on to more complex exercises, including Old Age, Facial Hair, Wounds and Fantasy.

**THET284 Stage Costume Construction I (3 Credits)**
Study and practical experience in garment construction and related costume crafts as used in theatre costume design. Flat pattern development, corset construction, theatrical sewing techniques and organization of the costume construction process.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET285 The Art of Communication and Presentation (3 Credits)**
An introduction to the fundamental practice and theory of public speaking and oral communication using theatrical techniques of both performance and the craft of storytelling.
**Credit Only Granted for:** COMM107, COMM200, INAG110, JOUR130, or THET285.

**THET286 Experiential Learning I (1-3 Credits)**
Introductory internship in theatre. Constructed to help students in their sophomore year gain practical experience in a supportive work environment in the theatre. Student must research and propose internship to a Faculty Advisor and Internship Venue.
**Prerequisite:** THET222, THET223, and THET116. And THET114; or TDPS201. And permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET287 Subversive Cultures and Performance (3 Credits)**
Every society has rebels - those who refuse to conform to the mainstream's rigid rules, aesthetics, and beliefs. From unruly skateboarders, punk rockers, bohemian poets, and radical theater performers, to national revolutionary movements and brick-throwing anarchists - such groups form niches that are defined by their exclusion from society. We will look at how their beliefs and actions fit into a particular historical context, and how their actions drive social change.
**Credit Only Granted for:** THET289I or THET287.
**Formerly:** THET289I.

**THET290 History Plays: From Conquest to Contemporary American Theatre (3 Credits)**
Investigates the braided relationship between American history, theatre, and race. In this course, students will destabilize their understandings of each of these three terms by exploring them from two vantage points: from the point of view of historic American plays, and from the vantage of contemporary American "history plays" -- plays that draw on America's past to rewrite its future. Using the lens of Omi & Winant's theory of racial projects, students will explore how theatrical performances of racial difference from 1600 to 1900 were instrumental in crafting American ideologies, identities, and the nation state itself. The class will then telegraph through history to consider each historical play in dialogue with a contemporary "history play." Theatre 290 intentionally pivots between the past and present, page and stage, the political arena and the public sphere in order to demonstrate how America, theatre, and race consistently make and remake one another. The class emphasizes intersectional theories of race, and considers race alongside categories of gender and (dis)ability.
**Recommended:** THET110 and THET223 .

**THET293 Black Theatre and Performance I (3 Credits)**
Thematic and historical survey of African-American drama from the late nineteenth century to the 1960s. Emphasis on sociopolitical context, thematic thrust, issues, styles, the aesthetic reflected in the work, impact on African-American and general theatre audiences.

**THET294 Black Theatre and Performance II (3 Credits)**
Thematic and historical survey of African-American drama from the 1960s to the present. Emphasis on sociopolitical context, thematic thrust, issues, styles, the aesthetic reflected in the work, impact on African-American and general theatre audiences.
**Restriction:** Sophomore standing or higher.

**THET299 Independent Study (1-3 Credits)**
An independent study in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers; scenic, lighting, or costume designs; or a stage production.
**Restriction:** Permission of instructor; and sophomore standing or higher.
**Repeatable to:** 6 credits if content differs.

**THET310 Voice for the Actor I (3 Credits)**
Freeing the natural voice. In-depth experience of connection of actor's voice to thought, impulse and emotion. Tools for releasing tension, increasing resonance and range, and refining articulation will be explored.
**Prerequisite:** THET116, THET222, THET223, and TDPS201; and must Interview; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Restriction:** Sophomore standing or higher.

**THET324 Character Development (3 Credits)**
European-based physical approach to acting. Primary focus on character development, may include creating original characters and learning how to bring to life an already scripted character. Techniques to explore the soul and psychology of characters and their physical qualities, voice, rhythm and movement.
**Prerequisite:** Must have completed or be concurrently enrolled in THET310 and THET362; or permission of Instructor. And must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Restriction:** Junior standing or higher.

**THET325 Actor's Process I (3 Credits)**
Focus on use of self in creating character. Tools employed include decision-making and use of imagery, personalization, objectives, adjectives, and verbs.
**Prerequisite:** Must have completed or be concurrently enrolled in THET310; or permission of Instructor. And must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET326 Viewpoints (3 Credits)**
Viewpoints is a movement-based performance course for students who already have a foundation in the basics of acting and/or dance. The Viewpoints are a set of tools and vocabulary; using 9 categories of time and space, students will fully explore the possibilities of using their physical instruments (the body) to their fullest on stage.
**Prerequisite:** THET222, THET223, THET116, and TDPS201; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Credit Only Granted for:** THET328V or THET326.
**Formerly:** THET328V.

**THET328 Special Topics in Intermediate Theatre and Performance (1-3 Credits)**
Topics covered include: Intercultural Theatre, Performance Art, Puppetry, Solo Performance, or Theatrical Design.
**Prerequisite:** THET222, THET223, and THET116; and (THET114 or TDPS201); and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Restriction:** Junior standing or higher.
**Repeatable to:** 3 credits if content differs.

**THET328W Theatre and Dance in Iran and Afghanistan (3 Credits)**
Students will learn about stories, plays, and movements in Iran and Afghanistan from past to present. Through watching performances, readings, and discussions, we explore the relationship between storytelling, body, space, and power in forming and performing identity and life experiences. Looking at case studies from traditional, popular, and western style dance and theater are an exciting part of the course. Note: This course requires no prior knowledge of Persian culture or dance and theatre studies on the part of the students.
**Cross-listed with:** PERS385, TDPS358A.
**Repeatable to:** 3 credits if content differs.
**Credit Only Granted for:** TDPS358A, THET328W, PERS398A, or PERS385.
**Formerly:** PERS398A.

**THET330 Play Directing I (3 Credits)**
A lecture-laboratory course dealing with the techniques of coordinating, designing and guiding the production of a script through to performance. Study and practice in stage composition, movement, pacing, script and character analysis, and rehearsal routines. Emphasis on methods of communicating a script to an audience.
**Prerequisite:** THET222, THET223, and THET116. And THET114; or TDPS201. And permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Restriction:** Junior standing or higher.

**THET351 Musical Theatre I (3 Credits)**
An introduction for students interested in developing their skills with musical theatre, specifically the work of the actor interpreting songs and text in musicals. With a primary focus on American Musical Theatre repertoire, students will prepare and present various solo, duet, and group numbers.
**Credit Only Granted for:** THET351 or THET328M.
**Formerly:** THET328M.

**THET360 Voice Archetypes (3 Credits)**
The student will learn how to apply archetypal characters and expand performance potentialities, increase vocal self knowledge, discover rhythms, pitch variations, and sounds that reflect inner states of being.
**Prerequisite:** THET310 and THET362; and must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Credit Only Granted for:** THET360 or THET399Z.
**Formerly:** THET399Z.

**THET363 The Business of the Business (3 Credits)**
An in depth study of the business of working in the theatre. Explores early career opportunities and entry-level positions in the entertainment industry. Analyzes publicity, management, union, casting, and agency practices; how they apply to you and your career in the non-profit and commercial theatre.
**Prerequisite:** THET116, THET222, THET223, and TDPS201; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Credit Only Granted for:** THET399B or THET499E or THET363.
**Formerly:** THET399B, THET499E.

**THET369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**THET371 Scenic Design I (3 Credits)**
A study of design theory and style. Methods and techniques of coordination of all elements of scenic design for theatre.
**Prerequisite:** THET222, THET223, and THET116; and (THET114; or TDPS201). Or permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET372 Stage Property Design (3 Credits)**
Materials and techniques for the design and execution of stage properties with special emphasis on period research, special materials, and special effects.
**Prerequisite:** THET114; or TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET377 Lighting Design for Performance (3 Credits)**
A study of the theories of electrification, instruments, design, color, and control for the stage. Practical work on productions.
**Prerequisite:** THET222, THET223, THET116, and TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET380 Sound Design (3 Credits)**
Theatre Sound Design is a first course in designing sound for stage productions.
**Prerequisite:** THET116. And THET114; or TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Restriction:** Sophomore standing or higher.

**THET383 Costume Design I (3 Credits)**
Basic principles of theatre costume design and introduction to rendering skills. Emphasis on development of design conception, unity, character statement, basic clothing design and period style adaptation.
**Prerequisite:** TDPS201 or THET114; and (THET116, THET222, and THET223). Or permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET384 Stage Costume Construction II (3 Credits)**
Study and practical experience in the construction of stage costumes, props and accessories. Pattern development by draping, millinery, and crafts.
**Prerequisite:** THET284; or permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Credit Only Granted for:** THET384 or THET487.
**Formerly:** THET487.

**THET385 Media Design (3 Credits)**
Focuses on learning the grammar and conceptual thinking behind multimedia design for live performance. Students will learn how our new multimedia tools can enhance the sense of liveness as well as explore the different ways in which technology can be implemented into preproduction thinking, rehearsal experimenting, and ultimately, effective use in performance.
**Prerequisite:** THET222, THET223, THET116, and TDPS201; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Credit Only Granted for:** THET399D or THET385.
**Formerly:** THET399D.

**THET386 Experiential Learning (3-6 Credits)**
**Restriction:** Junior standing or higher; and permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET388 Special Topics in Performance Studies (3 Credits)**
Performance Studies is a broad discipline that offers strategies for exploring diverse texts from diverse perspectives. Students are encouraged to explore critical and practical approaches to research and performance, including the History and Practice of Festivals and Carnival Performances, Comedy, Performance in Everyday Life, Contemporary Theatre at the Margins, and Stage Adaptation.
**Prerequisite:** THET222, THET223, THET116, THET114, or TDPS201; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Restriction:** Sophomore standing or higher.
**Repeatable to:** 6 credits if content differs.

**THET390 History of Theatre I (3 Credits)**
The history of Western theatre from its origins in classical antiquity through the mid-seventeenth century with emphasis on plays and playwrights, architecture and decor, acting and costuming, and significant personalities. Includes explorations of interrelationships between Western theatre and the theatre of other cultures.
**Prerequisite:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET391 Theatre History II (3 Credits)**
The history of Western theatre from the mid seventeenth century to the early twentieth century, with emphasis on plays and playwrights, architecture and decor, acting and costuming, and significant personalities. Includes explorations of interrelationships between Western theatre and the theatre of other cultures.
**Prerequisite:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET399 Independent Study (1-3 Credits)**
An independent study in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate in term papers, scenic; lighting, or costume designs; or a stage production.
**Restriction:** Permission of instructor; and junior standing or higher.
**Repeatable to:** 6 credits if content differs.

**THET408 Seminar: Theory and Performance Studies (3 Credits)**
Studies in theatre theory and performance studies from classical antiquity to the present.
**Repeatable to:** 12 credits if content differs.

**THET411 Voice for the Actor II (3 Credits)**
Learn the International Phonetic Alphabet (IPA) and apply to exploration of sound and language. Designed to increase voice and speech awareness, and create a base knowledge from which to approach any accent or dialect.
**Prerequisite:** THET324 or THET325; and must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Restriction:** Junior standing or higher.
**Credit Only Granted for:** THET311, THET411, or THET499L.
**Formerly:** THET311.

**THET420 Language and the Actor (3 Credits)**
Explores the actor's relationship to language, particularly heightened poetic language, in order to: develop the ability to embody language and vocally and physically project the images; apply an intellectual understanding of the inherent structural, poetic, and rhetorical techniques of heightened language in combination with action theory; and access the inner states of character while expressing them through text.
**Prerequisite:** THET325 or THET324; and must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET424 Movement II: Advanced Studies in Movement and Mask Theatre (3 Credits)**
A deeper exploration of how to use the actor's instrument for dramatic expression. Continuing work in the F.M. Alexander Technique and foundational exercise to help actors learn what they need to prepare for rehearsal and performance. Other techniques may include theatrical styles, physical character, dramatic use and play with space and rhythm and masks.
**Prerequisite:** THET325 or THET324; and must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Restriction:** Junior standing or higher.

**THET425 Actor's Process II (3 Credits)**
A deeper exploration of the work begun in THET325. A continuation of creating a personal process through which the actor can confidently approach any genre of play. Special focus on status and subtext and the world of the playwright.
**Prerequisite:** THET325; and must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET426 Theatrical Clown (3 Credits)**
Progression of developing individual clown characters through methods based on European pedagogy which emphasizes a physical and technical approach to actor training.
**Prerequisite:** THET324 or THET325; and must Audition.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Credit Only Granted for:** THET426, THET499C or THET 499O.
**Formerly:** THET499C, THET499O or THET426.

**THET428 Special Topics in Advanced Theatre and Performance (1-3 Credits)**
This course is offered as part of the School of Theatre, Dance, and Performance Studies' Artist in Residence program. Topics covered may include: Intercultural Theatre; Performance Art; Puppetry; Solo Performance; or Theatrical Design.
**Prerequisite:** THET114 or TDPS201; and (THET116, THET222, and THET223); and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Restriction:** Junior standing or higher.
**Repeatable to:** 3 credits if content differs.
**Additional Information:** Incorporate the change from THET 114 to TDPS 201, listing both numbers, as students will take the prerequisite under either number. To change the catalog description to reflect the proper unit name as the School of Theatre, Dance, and Performance Studies.

**THET429 Actor's Studio (1-3 Credits)**
Participation in dramatic roles executed under faculty supervision in the department's productions. Eligible students must make commitments and plan performances with course instructor during pre-registration.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 10 credits.

**THET435 Advanced Costume Construction (3 Credits)**
The course is taught in a presentation/practical application format. Students will learn advanced techniques in draping and pattern development and develop proficiency in communication of design and construction choices.
**Prerequisite:** THET284 and THET384; and portfolio review; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Jointly offered with THET635.
**Credit Only Granted for:** THET435, THET499 K, THET635, or THET669K.
**Formerly:** THET499K and THET669K.

**THET440 Advanced Playwriting (3 Credits)**
Ensemble-based writer's workshop. It is the second part of a two-course sequence and is designed for students who already have a foundation in the basics of playwriting or who are other wise well-versed in the art of theatre and dramatic structure. Through exploratory writing sequences, the reading of full-length plays, and in-class readings of work-in-progress, students will continue to deepen their craft and develop the script for a new full-length play.
**Prerequisite:** THET340; or permission of instructor. And permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Credit Only Granted for:** THET440 or THET499P.
**Formerly:** THET499P.

**THET451 Musical Theatre Workshop I (3 Credits)**
Development of the ability to move, act and express through the media of lyric and music.
**Prerequisite:** Must audition.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET452 Musical Theatre Workshop II (3 Credits)**
Development of the ability to move, act and express through the media of lyric and music from the integrated musicals of the 1960s through the development of concert and rock/pop musicals.
**Prerequisite:** Must audition.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET465 History of Fashion for the Theatre (3 Credits)**
A survey of Western clothing from the Ancient Worlds through 20th Century. A discussion of the cultural contexts of various trends in fashion through an examination of art, industry and textiles.
**Prerequisite:** THET116; or permission of instructor.
**Restriction:** Sophomore standing or higher.

**THET469 Study Abroad Special Topics IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**THET471 Design Studio in Scenery (3 Credits)**
Advanced study of scenic design for the theatre. Particular design projects will vary.
**Prerequisite:** THET371; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Jointly offered with THET639.
**Credit Only Granted for:** THET471 or THET639.

**THET472 Scene Painting (3 Credits)**
Scene painting techniques and materials. Three-dimensional realistic scenery and non-realistic two-dimensional projects.
**Prerequisite:** THET114 or TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department.

**THET473 Rendering for the Theatre II (3 Credits)**
Continued study in rendering techniques and graphic skills for theatrical design presentation. Emphasis on style, technique and use of different artistic media.
**Prerequisite:** THET373; or permission of instructor.

**THET474 Advanced Stage Management (3 Credits)**
Intensive practical study of the techniques and procedures for stage management.
**Prerequisite:** THET114 or TDPS201; and (THET116, THET222, THET223, and THET274); and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department; and sophomore standing or higher.

**THET475 History of Art, Architecture, and Decor for the Theatre (3 Credits)**
Study of Western art, architecture, and decor and their practical application to theatrical production.
**Prerequisite:** THET114 or TDPS201; and (THET116, THET222, and THET223); and permission of ARHU-School of Theatre, Dance & Performance Studies department. Jointly offered with THET670.
**Credit Only Granted for:** THET475 or THET670.

**THET477 Design Studio in Lighting (3 Credits)**
Designed for students who have successfully completed THET377 and wish to further develop their lighting design skills. Emphasis is on theoretical design of productions and realized light lab projects. Particular design projects will vary.
**Prerequisite:** THET377; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Jointly offered with THET659.
**Credit Only Granted for:** THET477 or THET659.

**THET479 Production Practicum (1-3 Credits)**
Designed to expand students' practical knowledge and skills through working on Department of Theatre productions.
**Prerequisite:** THET116 and THET114; and permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits if content differs.

**THET480 Advanced Sound Design (3 Credits)**
Students will dive deeper into the technical elements of sound design, developing a working understanding of both software editing tools as well as the primary components of a live sound system.
**Prerequisite:** THET380 and permission of the School of Theatre, Dance, and Performance Studies.

**THET481 Theatre Graphics II: Computer Assisted Design (3 Credits)**
Study and practical application of computer generated graphical design for use in theatrical production.
**Prerequisite:** THET114 or TDPS201; and THET116; and permission of ARHU-Theatre department.
**Restriction:** Sophomore standing or higher.

**THET482 Scene Painting II (3 Credits)**
Advanced study of theatrical scenic painting.
**Prerequisite:** THET472; or permission of instructor.
**Restriction:** Sophomore standing or higher.

**THET488 Special Topics in Theatre History Before 1800 (3 Credits)**
Topics in the history of world theatre and performance from the Greeks through 1800.
**Repeatable to:** 12 credits if content differs.

**THET489 Special Topics in Theatre History from 1800 to Present (3 Credits)**
Topics in the history of world theatre and performance from 1800 to present.
**Repeatable to:** 12 credits if content differs.

**THET491 Theatrical Rendering Using Photoshop (3 Credits)**
A studio course in rendering for the theatre. The course focuses primarily on traditional approaches to perspective drawing, space, texture, color and lighting rendering using Photoshop. Photoshop tools and techniques; preparing three-dimensional objects for accurate rendering; and techniques for Photoshop rendering and lighting of three-dimensional objects and architectural forms. This class primarily has an emphasis on rendering/uses for scenic design.
**Prerequisite:** THET471.
**Credit Only Granted for:** THET491 or THET428O.
**Formerly:** THET428O.

**THET497 Non-Traditional Theatre (3 Credits)**
Seminar exploring American and European experimental performance since 1960. Topics include experimental theatre, performance art, pornography and performance, gender and performance, and popular culture and performance. Topics are treated historically and theoretically. Student-produced performance projects are an important component of the seminar.

**THET498 Seminar: Theatre History (3 Credits)**
Studies in theatre history from classical antiquity to the present.
**Prerequisite:** THET488 or THET489.
**Restriction:** Senior standing; and permission of instructor.
**Repeatable to:** 6 credits if content differs. Jointly offered with THET698.
**Credit Only Granted for:** THET498 or THET6 98.

**THET499 Independent Study (1-3 Credits)**
An independent study course in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers, scenic or costume designs, or a stage production.
**Restriction:** Permission of ARHU-School of Theatre, Dance & Performance Studies department.
**Repeatable to:** 6 credits.

# THEX - Theatre Education Abroad

**THEX100 London/Culture/Performance (3 Credits)**
Introduces students to aspects of London's cultural resources and history and explores London as a performance site. Examines current issues in cultural politics and engages with the vast cultural resources, history, and global connections of London through analysis of a range of texts, performances and events, and sites around London.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**THEX101 Theatre and Performance in North America (3 Credits)**
Studies contemporary drama and live art from countries including the United States, Canada, and Mexico. Explores how forms of and approaches to performance spread across a region and the globe through seminar discussions, readings, film, and television. Analyzes various performance styles and traditions including Indigenous performance, intercultural theatre, and Latinx theatre.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**THEX102 London: Walking the City (3 Credits)**
What is a city? This course asks students to consider the different ways that we might define a city and to explore different perspectives on London inflected by mobility, migration, class and gender. Through reading a range of literary and theoretical texts, as well as walking lectures, students will develop an understanding of the role of literature, performance and cultural institutions in producing and contesting urban experience.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**THEX300 Race and Racism in Performance (3 Credits)**
Explores how race is performed in theater, art, and popular culture. Examines questions about racism in performance casting and practices.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**THEX301 Voice, Gender, Performance (3 Credits)**
How do people use their voices, and what does this reveal or conceal about their gendered identities? How do gendered voices intersect with other aspects of identity, such as region, class, nation and race? This course explores how gender is voices in a variety of different spaces by drawing on theoretical material from a range of disciplinary fields, including cultural philosophy, sociolinguistics, film studies, and psychology while equipping students to use the voice creatively through mixed learning methods and attendance at exhibitions and performances.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**THEX302 Show Business: Theatre and Capitalism (3 Credits)**
Explores the relationship between theater and capitalism through the examination of key economic problems as they arise in the theater (e.g. "star" performers, box office, theater as entertainment, theater as a "creative industry," theater and real estate). Considers how performance offers a distinctive lens through which to think about broader movements (e.g. neoliberalism, globalization, urban development) that have become central to our everyday lives.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**THEX303 Live Art: Then and Now (3 Credits)**
Explores the recent history of Live Art, from the 1970s to the present via the study of significant as well as overlooked artists through audiovisual documentation, oral histories/interviews, and artists' writings, as well as significant scholarship and criticism in the field. Students will analyze performances and gain perspective on key themes for the study of Live Art, including (but not limited to) sexuality, gender, race and ethnicity, the blurring of art and life, extremity, duration, protest, and social engagement.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**THEX304 Scriptwriting: Creativity and Technique (6 Credits)**
Delves into the world of scriptwriting through production of an original script and analysis of filmed scripts. Explores the context around reading scripts as well as how to write a short original film script with coherent dialogue, exposition and structure.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**THEX305 The History of Emotions (3 Credits)**
We live in an era of angry voters, weeping celebrities, and governments intent on measuring happiness. The course explores the histories of feelings, emotions and passions through the study of a wide range of examples and case studies, and examines many different historical types, including intellectual history, gender history, cultural history, social history, religious history, the history of art, and the histories of science and medicine.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

# TLPL - Teaching and Learning, Policy and Leadership

**TLPL101 Inquiry Approach to Teaching STEM (Step 1) (1 Credit)**
Explore STEM teaching and learning and classroom complexity, and develop teaching skills through discussion-based, collaborative class sessions, and experiences in local schools. To explore/understand the fundamentals of inquiry teaching, students will observe, plan and teach student-centered lessons.
**Additional Information:** Students must allow for a three-hour window between 7:45 AM and 3:15 PM in their schedule for field experiences in a local school 3-4 times during the semester. A background check is required and will be facilitated by the Terrapin Teacher program coordinator.

**TLPL102 Inquiry Teaching of STEM in Middle School (2 Credits)**
Second course in the Terrapin Teachers teacher preparation sequence. Students gain field experience and continue exploring teaching as a career by conducting teacher observations, and planning and implementing lessons in local, high-need middle school classrooms. Students work closely with UM master teachers to build upon the inquiry-based teaching practices developed in TLPL 101. Students work with mathematics and science curricula while attending to state and district standards, in order to develop and enact lessons that are responsive to students' reasoning in math and science.
**Prerequisite:** Must have completed TLPL101.
**Additional Information:** Attendance at each class session will be vital to student success in the course. To complete the observations and lessons, students must allow a three hour block of time during the local middle school operational hours from 7:45 am to 3:15 pm. A background check is required.

**TLPL200 Exploring Teaching as a Career (3 Credits)**
Weekly participation as a volunteer tutor in a local school or community program with children or adolescents. Regular campus meetings assist with developing teaching skills and insight.
**Credit Only Granted for:** EDCI210 or TLPL200.
**Formerly:** EDCI210.

**TLPL202 Good Stories: Teaching Narratives for Peace and Justice (3 Credits)**
Through the study and use of oral storytelling and digital technologies explore qualities and characteristics of what makes a good story and how stories can be used to advance peace and justice on both individual and social levels.
**Credit Only Granted for:** EDCI246 or TLPL202.
**Formerly:** EDCI246.

**TLPL204 Latino and Black Schooling: A History (3 Credits)**
The historical, cultural, political and socio-economic factors that shape the school experience and achievement (Kindergarten - college) of Latinos and Blacks in the U.S.
**Credit Only Granted for:** EDCI286 or TLPL204.
**Formerly:** EDCI286.

**TLPL206 Forbidden Books: Censorship of Children's and Young Adult Literature (3 Credits)**
What is the relationship between censorship and intellectual freedom? This course examines the history of censorship from Plato to Fake News with a focus on contemporary censorship analyzed through historical, political, ethical, moral, philosophical, and socio-cultural perspectives. We consider the evolving definition of censorship, forms of censorship, the rationalizations and arguments for censorship, and the consequences and unintended results of censorship.
**Credit Only Granted for:** TLPL288W or TLPL206.
**Formerly:** TLPL288W.

**TLPL210 Childhood Reimagined: Learning In and Out of Schools (3 Credits)**
Surveys innovative approaches to child education, including unschooling, homeschooling, blended instruction, place-based learning, Big Picture Learning, democratic schools, microschools, self-directed learning centers, and other alternatives to traditional schools.
**Credit Only Granted for:** TLPL288K or TLPL210.
**Formerly:** TLPL288K.

**TLPL250 Historical and Philosophical Perspectives on Education (3 Credits)**
An examination of illustrative historical and philosophical examples of the interplay of ideas and events in the shaping of educational aims and practices from ancient cultures to modern technological societies.
**Credit Only Granted for:** EDPS210 or TLPL250.
**Formerly:** EDPS210.

**TLPL251 Community, Learners, and Classroom Climate (3 Credits)**
Focuses on classroom community building as an ethic of caring for students and examines the connection between classroom climate and learning. Topics include students' funds of knowledge, social-emotional competency, and the practices that maintain a safe and inclusive classroom climate. Wellness strategies to support teacher resilience are also addressed.
**Additional Information:** This course has a field component in a local elementary school.

**TLPL252 Students, Schooling, and Communities (3 Credits)**
Facilitates pre-service teachers' initial look at their personal backgrounds and the ways in which they view the world. Exploration of schools, students and their connections to communities. Draws on preservice teachers' concurrent field experiences.
**Corequisite:** TLPL251.
**Credit Only Granted for:** EDCI297 or TLPL252.
**Formerly:** EDCI297.

**TLPL253 Language Rights and Repression in Education (3 Credits)**
Many English-speaking Americans view societal monolingualism and English-speaking in schools as the standard. The proposed course will delve deeply into issues associated with language, language rights, education, and linguistic repression in schooling. The Big Question of our time this course asks is: Are access to education and native language maintenance civil rights? Human rights?

**TLPL287 Inquiry Into Issues in US Public Schooling: Policies, Practice and Promise (3 Credits)**
Students will inquire into enduring issues faced by US public education, focusing on the forces and stakeholders that have shaped current policy and practice. In addition, students will work to consider the real daily consequences of policy on the lives of students and teachers. Through crafting and researching a question of interest, employing a project based learning approach, students will take a deep dive into the most vexing issues faced by public education in the United States.
**Credit Only Granted for:** TLPL288T or TLPL287.
**Formerly:** TLPL288T.

**TLPL288 Special Problems in Education (1-6 Credits)**
Special and intensive treatment of current topics and issues in teaching, learning, policy and leadership. Available only to freshmen and sophomore students who have definite plans for individual study of approved problems relative to their preparation for teaching.
**Restriction:** Permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Formerly:** EDPS288.

**TLPL288K Childhood Reimagined: Learning In and Out of Schools (3 Credits)**
Surveys innovative approaches to child education, including unschooling, homeschooling, blended instruction, place-based learning, Big Picture Learning, democratic schools, microschools, self-directed learning centers, and other alternatives to traditional schools.
**Credit Only Granted for:** TLPL288K or TLPL210.
**Formerly:** TLPL288K.

**TLPL298 Special Problems in Education (1-6 Credits)**
Exploration of current problems in teaching, learning, policy and leadership. Available only to students who have definite plans for study of approved problems.
**Restriction:** Permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Repeatable to:** 6 credits if content differs.
**Formerly:** EDCI298.

**TLPL300 Digital Learning Tools and Communities (1 Credit)**
An exploration of the digital tools available for P12 students and their teachers that enhance learning and help build classroom community. This hybrid course will prepare P12 teachers to incorporate instructional technology, digital learning resources, and social media in P12 classrooms.
**Restriction:** Minimum cumulative GPA of 2.75; and must be in one of the following programs (Elementary Education; Secondary Educ: Social Studies; Secondary Educ: Art; Secondary Educ: Mathematics; Secondary Educ: Science; Secondary Educ: English Language Arts; Secondary Educ: Foreign Languages).
**Credit Only Granted for:** EDCI385 or TLPL300.
**Formerly:** EDCI385.

**TLPL312 Curriculum and Instruction in Elementary Education: Mathematics (3 Credits)**
Materials and procedures to help children sense arithmetical meanings and relationships. Development of an understanding of the number system and arithmetical processes. Includes laboratory/field experiences.
**Prerequisite:** TLPL361.
**Corequisite:** EDCI362, EDCI342, TLPL321, and TLPL362.
**Restriction:** Must be in Elementary Education program; and minimum cumulative GPA of 2.75; Or permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** EDCI352 or TLPL312.
**Formerly:** EDCI352.

**TLPL321 Curriculum and Instruction in Elementary Education: Science (3 Credits)**
Objectives, methods, materials and activities for teaching science in the elementary school; emphasis on teaching strategies which help children learn the processes and concepts of science. Includes laboratory/field experiences.
**Prerequisite:** TLPL361.
**Corequisite:** TLPL312, EDCI362, EDCI342, and TLPL362.
**Restriction:** Must be in Elementary Education program; and minimum cumulative GPA of 2.75; Or permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** EDCI372 or TLPL321.
**Formerly:** EDCI372.

**TLPL332 Arts Integration in Elementary Classrooms (3 Credits)**
An exploration of the theories and core practices associated with integrating the arts in ways that promote student learning in the core subjects.
**Corequisite:** TLPL362, EDCI362, TLPL361, and EDCI489.
**Restriction:** Must be in Elementary Education program; and minimum cumulative GPA of 2.75; Or permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** TLPL306 or TLPL332.
**Formerly:** TLPL306.

**TLPL340 Introduction to Children's Literature and Critical Literacy (3 Credits)**
Analysis of literary materials for children and youth. Timeless and ageless books, and outstanding examples of contemporary publishing. Evaluation of the contributions of individual authors, illustrators and children's book awards.
**Restriction:** Must be in Elementary Education program; or must be a Pre-Education Major.
**Credit Only Granted for:** EDCI443 or TLPL340.
**Formerly:** EDCI443.

**TLPL341 Assessing Language and Literacy Development in Elementary Classrooms (3 Credits)**
An exploration of the social and cognitive processes involved in reading and writing, the developmental nature of those processes, the foundational concepts associated with effective literacy assessment, a variety of formative and summative literacy assessments, and the nature of individual differences in reading and writing.
**Corequisite:** TLPL479, EDHD411, and EDSP401.
**Restriction:** Must be in the Elementary Education program; and permission of EDUC-Teaching and Learning, Policy and Leadership.
**Credit Only Granted for:** TLPL341 or TLPL488R.
**Formerly:** TLPL488R.

**TLPL342 Promoting Skilled and Motivated Readers in Diverse Elementary Classrooms (Part 1) (3 Credits)**
An investigation of the materials, curriculum, teaching and learning practices and assessment methods associated with promoting skilled and motivated readers in diverse elementary classrooms. Teacher candidates will learn to use assessments to design instruction in the core components of reading, in line with students' individual needs and the Maryland College and Career Ready Standards.
**Corequisite:** TLPL362, TLPL361, TLPL332, and TLPL479.
**Restriction:** Must be in the Elementary Education program; and permission of EDUC-Teaching and Learning, Policy and Leadership.
**Credit Only Granted for:** TLPL488L or TLPL342.
**Formerly:** TLPL488L.

**TLPL343 Promoting Skilled and Motivated Readers in Diverse Elementary Classrooms (Part 2) (3 Credits)**
Application of the materials, curriculum, teaching and learning practices and assessment methods associated with classroom reading programs designed to promote skilled and motivated readers in diverse elementary classrooms. Teacher candidates will learn to assess and scaffold students' self-regulated literacy learning in line with students' individual needs and Maryland College and Career Ready Standards.
**Corequisite:** TLPL312, TLPL321, TLPL446, and TLPL489.
**Restriction:** Must be in the Elementary Education program; and permission of EDUC-Teaching and Learning, Policy and Leadership.
**Credit Only Granted for:** TLPL343 or TLPL488F.
**Formerly:** TLPL488F.

**TLPL344 Culturally Responsive Language and Literacy Instruction in Diverse Elementary Classrooms (3 Credits)**
Application of the asset-based practices associated with culturally responsive language and literacy programs. Teacher candidates will learn to plan, guide and assess students' integrated language and literacy practices (reading, writing, speaking and listening), with emphasis on writing instruction, in line with students' individual needs and Maryland College and Career Ready Standards.
**Corequisite:** TLPL300, TLPL478, and TLPL489.
**Restriction:** Must be in the Elementary Education program; and permission of EDUC-Teaching and Learning, Policy and Leadership.
**Credit Only Granted for:** TLPL488I or TLPL 344.
**Formerly:** TLPL488I.

**TLPL360 Foundations of Education (3 Credits)**
Social context of education and conflicts over philosophies, values, an goals that are reflected in educational institutions in our pluralistic society. Helps teachers become reflective, critical thinkers about the social and philosophical issues they face and the choices they make.
**Credit Only Granted for:** EDPS301 or TLPL360.
**Formerly:** EDPS301.

**TLPL361 Community, Learners, and Classroom Engagement (3 Credits)**
Focuses on classroom community building as an ethic of caring for students and examines the connection between classroom engagement and learning. Topics include student agency, the context and design of learning experiences, and the practices that sustain students' engagement in learning. Wellness strategies to support teacher resilience are also addressed.
**Corequisite:** TLPL332, TLPL362, TLPL342, and TLPL479G.
**Restriction:** Must be in Elementary Education program; and minimum cumulative GPA of 2.75; Or permission of EDUC-Teaching and Learning, Policy and Leadership department.

**TLPL362 Curriculum and Instruction in Elementary Education: Social Studies (3 Credits)**
Curriculum, organization and methods of teaching, evaluation of materials, and utilization of environmental resources. Emphasis on multicultural education. Includes laboratory/field experiences.
**Corequisite:** EDCI362, TLPL361, EDCI489, and TLPL306.
**Restriction:** Must be in Elementary Education program; and minimum cumulative GPA of 2.75; Or permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** EDCI322 or TLPL362.
**Formerly:** EDCI322.

**TLPL379 Professional Engagement In and Beyond the Secondary/MS/K-12 Classroom (1 Credit)**
Provides an early field experience (e.g., tutoring young children) in secondary school settings (e.g., middle school). Recommended for students exploring the possibility of or intending to minor in Education or major in Secondary/MS/K-12 education. Credit will not be granted for experience accrued prior to registration. This course is open to all students but best suited for those interested in a career in education. Students need to be prepared to participate in as many as 10 in-person tutoring sessions over the course of the semester. Transportation is provided.
**Repeatable to:** 3 credits.
**Additional Information:** Students need to be available for a half day once a week to engage in the field based tutoring experience.

**TLPL401 Student-Centered Curriculum and Instruction (3 Credits)**
A focus on using student-centered teaching and learning approaches in high school STEM classrooms. Students will develop and implement a multi-day series of lessons, building upon the foundations of inquiry-based practices developed in prior courses. Students will also consider the implications of cultural awareness on teaching practices broadly, as well as in the specific contexts of their fieldwork.
**Prerequisite:** Permission of instructor; and TLPL102; and must have completed or be concurrently enrolled in TLPL488M.
**Credit Only Granted for:** TLPL488P or TLPL401.
**Formerly:** TLPL488P.
**Additional Information:** Field experience for this course will require students to be available for a 2-4 hour block of time at various points throughout the semester to complete observations and teach lessons between 8:00 a.m. and 3:30 p.m. A background check is required and will be facilitated through the Terrapin Teacher program coordinator.

**TLPL403 Teaching and Learning High School Mathematics (3 Credits)**
Methods of teaching and assessing the high school mathematics curriculum; aligning tasks and activities to curriculum standards; lesson planning; and selection and use of technology. The course also focuses on managing large group dynamics in the high school mathematics classroom.
**Prerequisite:** Must have 2 semesters of calculus; or permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Corequisite:** EDCI355.
**Restriction:** Must be in Secondary Educ: Mathematics program; and minimum cumulative GPA of 2.75; Or permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** EDCI455 or TLPL403.
**Formerly:** EDCI455.

**TLPL406 Teaching and Learning Mathematics in the Elementary School, Part 1 (3 Credits)**
Focuses on teaching and learning whole numbers. Special emphasis will be placed on developing equitable teaching practices that enable culturally and linguistically diverse students to develop knowledge and skills that promote mathematical proficiency. Mathematical concepts: Content knowledge: some aspects of early numeracy, whole numbers and the four arithmetic operations, some aspects of algebraic thinking.
**Jointly offered with:** TLPL607.
**Credit Only Granted for:** TLPL607 or TLPL406.

**TLPL407 Teaching and Learning Mathematics in the Elementary School, Part 2 (3 Credits)**
Focuses on teaching and learning rational numbers (fractions and decimals) and developing algebraic thinking. Special emphasis will be placed on developing equitable teaching practices that enable culturally and linguistically diverse students to develop knowledge and skills that promote mathematical proficiency. Mathematical concepts: Content knowledge: rational numbers (fractions and decimals) and the four arithmetic operations, algebraic thinking, some aspects of geometry and measurement.
**Credit Only Granted for:** TLPL488G or TLPL407.

**TLPL413 Teaching and Learning Middle School Mathematics (3 Credits)**
Methods of teaching and assessing the middle school mathematics curriculum. Understanding the conceptual difficulties students have in moving from whole numbers to rational numbers, additive thinking to multiplicative thinking, and arithmetic to algebra. Lesson planning and selection of technology and other materials are applied in the context of supervised tutoring of students having difficulty in middle school mathematics. Lab and field experience required. Supervised tutoring takes place on site at a local middle school therefore TLPL413 students will be expected to travel to a local middle school for 8-10 of the class meetings.
**Restriction:** Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** EDCI457 or TLPL413.
**Formerly:** EDCI457.

**TLPL414 Knowing and Learning in Mathematics and Science (3 Credits)**
Special and intensive treatment of current topics and issues in mathematics and science teaching and learning, policy and leadership. The overall goal of the course is to orient future teachers to the discourses and theories that shape what we know about how students learn math and science.
**Prerequisite:** Must have completed or be concurrently enrolled in TLPL102.
**Credit Only Granted for:** TLPL488M or TLPL414.
**Formerly:** TLPL488M.

**TLPL415 Perspectives in Science (3 Credits)**
Overview of the history of science and philosophical perspectives on science, particularly as they apply to science teaching.
**Prerequisite:** Permission of instructor.
**Credit Only Granted for:** TLPL488W or TLPL415.
**Formerly:** TLPL488W.

**TLPL418 Teaching Residency (3-9 Credits)**
An extended teaching internship in an Elementary Professional Development School. School placements to be arranged.
**Prerequisite:** Must have completed or be concurrently enrolled in TLPL352, TLPL363, TLPL372, TLPL415.
**Restriction:** Restricted to Elementary Education majors with permission of the Department; 2.75 GPA required.
**Repeatable to:** 12 credits.
**Credit Only Granted for:** TLPL418 or EDCI481.

**TLPL420 Knowledge, Reasoning, and Learning in Science (3 Credits)**
For prospective science teachers. Investigations of the nature of knowledge, reasoning, and learning in middle and secondary science. Readings from cognitive science and science education research; studies of student thinking in interview and classroom observations; analyses of curricula. Includes laboratory and field experiences.
**Restriction:** Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** TLPL420 or EDCI411.
**Formerly:** EDCI411.

**TLPL421 Practices in Secondary School Science Teaching (2 Credits)**
Analyses of student thinking, instructional interpretations, strategies, and techniques in the teaching internship.
**Prerequisite:** TLPL425.
**Corequisite:** EDCI471 and EDCI474.
**Restriction:** Permission of EDUC-Teaching and Learning, Policy and Leadership department; and must be in Secondary Educ: Science program. Or minimum cumulative GPA of 2.75.
**Credit Only Granted for:** TLPL421 or EDCI480.
**Formerly:** EDCI480.

**TLPL423 Interdisciplinary Teaching in the Middle Grades I (2 Credits)**
For prospective middle school teachers. Studying and planning interdisciplinary instructional practices in middle school. Utilizes context and experiences from students' field placements. Use of technology and incorporation of technology into instruction.
**Prerequisite:** TLPL413 and TLPL420; or permission of instructor.
**Corequisite:** EDCI360 and TLPL475.
**Restriction:** Minimum cumulative GPA of 2.75; and must be in the Middle School Teacher Education Program, major code 0804P.
**Credit Only Granted for:** EDCI413 or TLPL423.
**Formerly:** EDCI413.

**TLPL424 Interdisciplinary Teaching in the Middle Grades II (2 Credits)**
For prospective middle school teachers. Planning and implementing interdisciplinary instructional practices in middle school. Draws on the context of and experiences in the student teaching placement. Use of technology and incorporation of technology into instruction.
**Prerequisite:** EDCI360 and TLPL423.
**Corequisite:** TLPL476 and EDCI460.
**Restriction:** Minimum cumulative GPA of 2.5; and must be in the Middle School Teacher Education Program.
**Credit Only Granted for:** EDCI414 or TLPL424.
**Formerly:** EDCI414.

**TLPL425 Learning and Teaching in Science (3 Credits)**
Studies of student learning and instructional practices in science teaching.
**Prerequisite:** TLPL420; or permission of instructor.
**Restriction:** Must be in Secondary Educ: Science program.
**Credit Only Granted for:** EDCI470 or TLPL425.
**Formerly:** EDCI470.

**TLPL433 Foundations of Art Education (3 Credits)**
Introduction to the field of Art Education and the role of the visual arts in grades PreK-12 for today's diverse school populations. The fundamental, historical and philosophic components of art education with an emphasis on arts disciplines and curriculum. Includes a school-based practicum. For those considering art education as a major.
**Restriction:** Minimum cumulative GPA of 2.75.
**Credit Only Granted for:** EDCI403 or TLPL433.
**Formerly:** EDCI403.

**TLPL435 Art Education Methods I (3 Credits)**
Methods I provides future art teachers with a knowledge base of the theories and best practices of effective pedagogy for: teaching methods and strategies, diversity, motivational techniques, classroom management, assessment and evaluation methods, and accommodating all students including those with special needs.
**Restriction:** Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching and Learning, Policy and Leadership department. And must be in Secondary Educ: Art program; or must be in Secondary Educ: Art pre-major program.
**Credit Only Granted for:** EDCI405 or TLPL435.
**Formerly:** EDCI405.

**TLPL436 Studio Processes and Materials: 2D (3 Credits)**
A discussion/studio format used to develop skills, materials, resources and education strategies for using technology and two-dimensional art in K-12 programs.
**Prerequisite:** ARTT210.
**Restriction:** Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching and Learning, Policy and Leadership department; and junior standing or higher; and must not be in any of the following programs (Early Childhood Education; Elementary Education; Secondary Educ: Science; Secondary Educ: English Language Arts; Secondary Educ: Mathematics; Secondary Educ: Foreign Languages; Secondary Educ: Social Studies; Physical Education; Music Education; Special Education).
**Credit Only Granted for:** EDCI406 or TLPL436.
**Formerly:** EDCI406.

**TLPL437 Studio Processes and Materials: 3D (3 Credits)**
A lecture-studio course to develop skills, material resources, and educational strategies for three-dimensional projects in school settings.
**Restriction:** Must be in Secondary Educ: Art program; or must be a Pre-Art Education Major.
**Credit Only Granted for:** EDCI407 or EDCI437.
**Formerly:** EDCI407.

**TLPL440 Foundations of Educating Multilingual Learners (3 Credits)**
Investigates historical, theoretical, and public policy issues and current practice in the field of education as it relates to multilingual learners (also known as English Language Learners, English Learners) in K-12 and other settings.
**Credit Only Granted for:** EDCI432 or TLPL440.
**Formerly:** EDCI432.

**TLPL441 Methods for Teaching Multilingual Learners (3 Credits)**
Draws on current research to present methods of teaching English to speakers of other languages and challenges participants to analyze and apply successful classroom practices that address the needs of culturally and linguistically diverse learners (also known as English Language Learners, English Learners).
**Credit Only Granted for:** EDCI434 or TLPL441.
**Formerly:** EDCI434.

**TLPL442 Foundations of Literacy and Biliteracy Development (3 Credits)**
An overview of the research on literacy and biliteracy development for English learners. Specifically, the course explores the theoretical models and processes of teaching reading and writing, current literacy/biliteracy issues, assessment, and strategies for developing literacy and biliteracy skills for English learners.
**Credit Only Granted for:** EDCI435 or TLPL442.
**Formerly:** EDCI435.

**TLPL443 Cross-Cultural Communication and Multilingual Learners (3 Credits)**
Participants will research and critically reflect upon aspects of culture as a basis to understand students and to develop principles to guide culturally inclusive teaching decisions. Participants will better understand the role of culture and language in schooling in order to create classrooms where culturally and linguistically diverse students (also known as English Language Learners, English Learners) can succeed.
**Credit Only Granted for:** EDCI436 or TLPL443.
**Formerly:** EDCI436.

**TLPL444 Teaching and Understanding English Grammar with Multilingual Learners (3 Credits)**
Students will analyze the major grammatical structures of American English and the role of teaching grammar and developing effective classroom methods and techniques for multilingual learners. To do so, students will be exposed to diverse theories, approaches, methods, and practical techniques of grammar instruction in order to assist multilingual learners (also known as English Language Learners, English Learners) K-12 classrooms.
**Credit Only Granted for:** EDCI437 or TLPL444.
**Formerly:** EDCI437.

**TLPL445 Methods I: K-12 World Language Methods and Technology (3 Credits)**
The first of two sequential courses required for achieving competence i teaching a foreign language. The sequel to this course is EDCI433 (Methods II) entitled: Advanced K-12 Foreign Language Methods and Technology. EDCI410 requires on-going examination of theories relevant to language acquisition. Students will also investigate the instructional methods that reflect those theories. Lab and field experiences required.
**Restriction:** Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** EDCI410, TLPL445, EDCI688K, or TLPL695.
**Formerly:** EDCI410.

**TLPL446 Language Variation and Multilingualism in Elementary Classrooms (3 Credits)**
Issues in language variation and multilingualism in elementary classrooms, schools and communities with a focus on classroom practice, assessment, and policy.
**Restriction:** Must be in Elementary Education program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching and Learning, Policy and Leadership department.

**TLPL447 Art Education Methods II (3 Credits)**
Methods II builds upon the pedagogical foundation of Methods I and provides future art teachers with the means for developing pre K-12 art lessons and unit plans for a balanced qualitative art program for today's diverse and inclusive schools and classrooms.
**Prerequisite:** TLPL435; or students who have taken courses with comparable content may contact the department.
**Restriction:** Minimum cumulative GPA of 2.75; and must be in Secondary Educ: Art program.
**Credit Only Granted for:** EDCI423, EDCI603, TLPL447 or TLPL633.
**Formerly:** EDCI423.

**TLPL450 Advanced K-12 World Language Methods and Technology (3 Credits)**
Teaches advanced best practices for effective foreign language instruction. Topics include: using authentic assessment and materials, applying national standards, teaching writing and culture, motivating students, providing strategy instruction, infusing technology, preparing for K-12 employment, and creating a professional portfolio.
**Prerequisite:** TLPL445.
**Corequisite:** EDCI438.
**Restriction:** Must be in Secondary Educ: Foreign Languages program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** EDCI433, EDCI688A, TLPL450 or TLPL696.
**Formerly:** EDCI433.

**TLPL451 Teaching and Learning in Secondary Education: English (3 Credits)**
An introduction for prospective middle and secondary English teachers into the basic issues, concepts, orientations, and processes that shape the teaching of English for diverse students in schools. Candidates explore their own perspectives in relation to local and national trends and develop basic teaching understanding and skills through on-campus seminars, teaching laboratory experiences, and guided field experiences. Students should reserve one full day or two half days per week for field experience.
**Credit Only Granted for:** EDCI416 or TLPL451.
**Formerly:** EDCI416.

**TLPL452 Bases for English Language Instruction (3 Credits)**
Examines current theory, research, best practice, curricula and materials focused on the teaching of English language to native and non-native English learners. Topics include morphology, syntax, semantics, vocabulary, pragmatics, argument, discourse structure, dialects, edited academic English, English language proficiency (listening, speaking, reading, writing) assessment, and instructional planning. English Language Learner (TESOL and SIOP) and special needs (inclusion) pupil issues considered.
**Restriction:** Must be in Secondary Educ: English Language Arts program; and minimum cumulative GPA of 2.75; and permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** EDCI417 or TLPL452.
**Formerly:** EDCI417.

**TLPL453 Life in Two Languages: Understanding Bilingual Communities and Individuals (3 Credits)**
Overview of society and individual multilingualism. Topics include diglossia, language shift, codeswitching, bilingual first language acquisition, language attrition, dual language education policy and practice.

**TLPL456 Teaching Writing (3 Credits)**
Examines current theory, research, best practice, curricula and materials for teaching written communication in grades K-12. Focuses on analytical, argumentative, informative/explanatory, literary analysis, narrative, descriptive, and research writing. Emphasizes instructional planning, assessment, writer problem-solving strategies, information search, development, organization and style appropriate to task, purpose and audience for both non-digital and digital text. English Language Learner and special needs pupil issues considered.
**Corequisite:** EDCI447.
**Restriction:** Must be in Secondary Educ: English Language Arts program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** EDCI467 or TLPL456.
**Formerly:** EDCI467.

**TLPL457 Literature for Adolescents (3 Credits)**
Reading and analysis of fiction and nonfiction; methods for critically assessing quality and appeal; current theory and methods of instruction; research on response to literature; curriculum design and selection of books.
**Restriction:** Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** EDCI466 or TLPL457.
**Formerly:** EDCI466.

**TLPL460 Materials and Instruction for Creating Skilled and Motivated Readers, Part I (3 Credits)**
Selecting, evaluating, and using a variety of materials and instructional strategies to create skilled and motivated readers in the elementary grades; Topics include emergent literacy, vocabulary development, reading comprehension and oral reading fluency in diverse classroom settings.
**Restriction:** Must be in Elementary Education program; and junior standing or higher. Or permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** EDCI461 or TLPL460.
**Formerly:** EDCI461.

**TLPL461 Materials and Instruction for Creating Skilled and Motivated Readers, Part II (3 Credits)**
Selecting, evaluating, and using a variety of materials to create skilled and motivated readers in the elementary grades, particularly in diverse classroom settings; Topics include word analysis, spelling, writing, reading comprehension strategies, directed reading lessons, and explicit instruction.
**Prerequisite:** TLPL361 and TLPL460.
**Corequisite:** TLPL312, EDCI342, TLPL321, and TLPL362.
**Restriction:** Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching and Learning, Policy and Leadership department; and must be in Elementary Education program.
**Credit Only Granted for:** EDCI462 or TLPL461.
**Formerly:** EDCI462.

**TLPL462 Reading in the Secondary School (3 Credits)**
Provides secondary school teachers with understanding the need for and approaches to teaching students to read and learn from content area texts.
**Restriction:** Minimum cumulative GPA of 2.75; and must be in one of the following programs (Middle School Education; Secondary Educ: Science; Secondary Educ: English Language Arts; Secondary Educ: Mathematics; Secondary Educ: Foreign Languages; Secondary Educ: Social Studies; Secondary Educ: Art) ; and permission of department required for post-baccalaureate students.
**Credit Only Granted for:** EDCI463 or TLPL462.
**Formerly:** EDCI463.

**TLPL470 Knowledge, Reasoning, and Learning in Secondary Social Studies (3 Credits)**
An exploration of the nature of knowledge and reasoning in social studies disciplines as well as how students learn social studies. Assessment and investigation of students' conceptions and misconceptions as well as their disciplinary thinking. Implications for teaching and initial lesson design are explored through on-campus seminars as well as guided field experiences. Students should reserve a regular half-day per week for the field experience in local schools. This course is required for admission to the secondary social studies double major.
**Restriction:** Permission of EDUC-Teaching and Learning, Policy and Leadership department; and minimum cumulative GPA of 2.75.
**Credit Only Granted for:** EDCI426 or TLPL470.
**Formerly:** EDCI426.

**TLPL471 Curriculum, Teaching, and Assessment in Secondary Social Studies (3 Credits)**
An exploration of curriculum development, teaching, and assessment in secondary history/social studies. Focus on identifying students' conceptions of social studies topics and designing lessons that advance students' disciplinary thinking and understanding.
**Prerequisite:** TLPL470.
**Corequisite:** EDCI428.
**Restriction:** Must be in Secondary Educ: Social Studies program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Center for Learning & Educational Technology.
**Credit Only Granted for:** EDCI427 or TLPL471.
**Formerly:** EDCI427.

**TLPL475 Equitable Classrooms (2 Credits)**
An exploration and application of major theoretical frameworks surrounding equity and critical pedagogy. Creating habits of mind that help teachers see all students as capable of achieving at high levels. Draws on the concurrent field experience.
**Prerequisite:** TLPL252, TLPL413, and TLPL420.
**Corequisite:** EDCI360 and TLPL423.
**Restriction:** Minimum cumulative GPA of 2.75; and must be in Middle School Education program.
**Credit Only Granted for:** EDCI424 or TLPL475.
**Formerly:** EDCI424.

**TLPL476 Equity and Pedagogy (2 Credits)**
An exploration and application of major theoretical frameworks surrounding equity and critical pedagogy. Pedagogical decision making that leads to greater equity and improved student learning for all students. Draws on the concurrent student teaching experience.
**Prerequisite:** TLPL475.
**Corequisite:** TLPL424 and EDCI460.
**Restriction:** Minimum cumulative GPA of 2.75; and must be in one of the following programs (Middle School Education; Early Childhood Education; Elementary Education; Secondary Educ: Science; Secondary Educ: English Language Arts; Secondary Educ: Mathematics; Secondary Educ: Foreign Languages; Secondary Educ: Social Studies; Physical Education; Music Education; Secondary Educ: Art; Special Education).
**Credit Only Granted for:** EDCI425 or TLPL476.
**Formerly:** EDCI425.

**TLPL477 Teaching Academically, Culturally, and Linguistically Diverse Students in Middle School and Secondary Education (2 Credits)**
Instruction on methods of teaching academically, culturally, and linguistically diverse students in middle school and secondary classrooms.
**Restriction:** Must be in the teacher education program; or permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** TLPL488B or TLPL477.
**Formerly:** TLPL488B.

**TLPL478 Professional Seminar in Education (1-3 Credits)**
Seminar on the issues and problems teacher candidates encounter in classrooms. Exploration of the skills and strategies that best address these challenges.
**Restriction:** Must be in a major within the EDUC-Teaching and Learning, Policy and Leadership department.
**Repeatable to:** 4 credits.
**Formerly:** EDCI488.

**TLPL479 Field Experiences in Education (1-4 Credits)**
Field experiences in approved eduation setting with appropriate supervision. Credit not to be granted for experience accrued prior to registration. Open only to students admitted to approved teacher education programs.
**Restriction:** Permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Repeatable to:** 2 credits.
**Formerly:** EDCI489.

**TLPL481 Embracing Diversity in the Classroom Community (3 Credits)**
An exploration of the richness and complexity of student diversity that teacher candidates will encounter in K-12 classrooms. Students will engage in critical reflection around diversity and equity issues.
**Restriction:** Admission to teacher education program; or permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** TLPL481 or EDCI475.
**Formerly:** EDCI475.

**TLPL488 Special Topics in Education (1-3 Credits)**
Special and intensive treatment of current topics and issues in teaching, learning, policy and leadership.
**Restriction:** Permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** EDPS488 or TLPL488.
**Formerly:** EDPS488.

**TLPL489 Internship in Education (1-12 Credits)**
Internship or residency experiences in school settings with appropriate supervision. Credit not to be granted for experience accrued prior to registration. Open only to students admitted to approved teacher education programs.
**Restriction:** Permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Repeatable to:** 12 credits.
**Credit Only Granted for:** EDPS489 or TLPL489.
**Formerly:** EDPS489.

**TLPL498 Special Problems in Education (1-3 Credits)**
Exploration of current problems in teaching, learning, policy and leadership. Available only to students who have definite plans for study of approved problems.
**Restriction:** Permission of EDUC-Teaching and Learning, Policy and Leadership department.
**Credit Only Granted for:** EDPS498 or TLPL498.
**Formerly:** EDPS498.

**TLPL499 Workshops, Clinics, and Institutes (1-6 Credits)**
The following type of educational enterprise may be scheduled under this course heading: Workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals, and supervisors.
**Credit Only Granted for:** EDPS499 or TLPL499.
**Formerly:** EDPS499.

# TLTC - Teaching and Learning Transformation Center

**TLTC222 Academic Technologies (3 Credits)**
Teaches students the instructional technology skills and strategies needed to support faculty teaching in technology-rich physical environments like the university's TERP classrooms as well as virtual environments such as ELMS-Canvas.
**Restriction:** Permission of TLTC required - enrollment restriction.
**Credit Only Granted for:** AGNR270, ARHU299T, BSOS288V, or TLTC222.

**TLTC310 Leadership in Collaborative Learning Groups (3 Credits)**
Experiential learning opportunity that applies principles of leadership, peer mentoring, and learning theory to the planning and facilitation of peer-led collaborative learning sessions. Incorporates research, reasoning, evidence, and feedback to develop a reflective practice.
**Restriction:** Restricted to students selected to participate in the Guided Study Sessions through the Teaching and Learning Transformation Center.
**Credit Only Granted for:** HESI318N or TLTC310.
**Formerly:** HESI318N.

**TLTC333 Fundamentals of Academic Peer Mentoring (1 Credit)**
How should scientific research influence the way we study and advance the academic performance of others? Learn about the scholarship of teaching and learning and develop the applied skills to support active learning as an academic peer mentor. Whether or not you ultimately pursue a career as an educator, the more effectively you can coach and support the performance of other people, and the more successful you will be. Guided online and face-to-face participation will culminate in a portfolio of your teaching activities and professional development.

**TLTC399 Independent Study in Academic Peer Mentoring (1-3 Credits)**
Earn academic credit for the time spent supporting a course in TLTC's Academic Peer Mentoring Program (AMP).
**Prerequisite:** Must have completed or be concurrently enrolled in TLTC333.
**Restriction:** Permission of TLTC required - enrollment restriction.
**Repeatable to:** 6 credits.

**TLTC499 Independent Study in Teaching and Learning (1-3 Credits)**
Earn academic credit for the time spent supporting TLTC's educational development programs and/or engaging in the scholarship of teaching and learning.
**Restriction:** Permission of TLTC required - enrollment restriction.
**Repeatable to:** 6 credits.

# UMEI - Maryland English Institute

**UMEI001 English as a Foreign Language: Beginning (12 Credits)**
Intensive course for the non-native speaker of English who has little or no previous knowledge of English. Focus on the rapid acquisition of the basic features of English grammar and pronunciation and on speaking and understanding American English; reading and writing appropriate to the level will be included. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.
**Restriction:** Permission of EDUC-Dean-Maryland English Institute department.

**UMEI002 English as a Foreign Language: Intermediate I (12 Credits)**
Intensive course for the non-native speaker of English who has had some previous instruction in English. Emphasis on improving listening and speaking skills, on mastering intermediate grammatical structures, and on expanding vocabulary. Includes practice in reading and writing appropriate to the level. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.
**Restriction:** Permission of EDUC-Dean-Maryland English Institute department.

**UMEI003 English as a Foreign Language: Intermediate II (12 Credits)**
Intensive course for the non-native speaker of English who has mastered the essential structures of English grammar. Emphasis on improving communicative skills for a wide range of linguistic situations, on rapid expansion of vocabulary, and on improving reading comprehension and basic writing skills. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.
**Restriction:** Permission of EDUC-Dean-Maryland English Institute department.

**UMEI004 English as a Foreign Language: Intermediate III (12 Credits)**
Intensive course for the non-native speaker of English who has a good command of the basic features of spoken and written English. Emphasis on refining speaking and listening skills, on improving reading speed and comprehension of academic texts, and on developing writing skills for academic courses. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.
**Restriction:** Permission of EDUC-Dean-Maryland English Institute department.

**UMEI005 Advanced English as a Foreign Language (6 Credits)**
Semi-intensive course for the nearly proficient non-native speaker of English needing additional language instruction prior to undertaking full-time academic study. Speaking and listening skills; improvement of reading speed and comprehension; and development of writing skills. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

**UMEI011 Integrated English: Elementary (5-10 Credits)**
English as a Second Language course for students at the elementary level.
**Prerequisite:** Placement exam; and permission of EDUC-Dean-Maryland English Institute department.

**UMEI012 Integrated English: Intermediate (5-10 Credits)**
English as a Second Language course for students at the intermediate level.
**Prerequisite:** Placement exam; and permission of EDUC-Dean-Maryland English Institute department.

**UMEI013 Integrated English: Advanced (5-10 Credits)**
English as a Second Language for students at the advanced level.
**Prerequisite:** Placement exam; and permission of EDUC-Dean-Maryland English Institute department.

**UMEI028 Special Topics in English as a Second Language (1-2 Credits)**
Focuses on particular English language topics for ESL student as indicated by title. Course intended to be taken concurrently with UMEI011, UMEI012, or UMEI013; but may be taken independently with special permission.
**Repeatable to:** 18 credits if content differs.

# UNIV - University Courses

**UNIV100 The Student in the University (1 Credit)**
Introduces students to University life. In a small classroom setting, students will explore how to successfully bridge the gap between high school and college. Study skills, career decision-making, and student development processes will be explored.
**Credit Only Granted for:** EDCP108O or UNIV100.
**Formerly:** EDCP108O.

**UNIV101 The Student in the University and Introduction to Computer Resources (2 Credits)**
Introduces students to University life and current computer resources. In a small classroom setting, students will explore the world of higher education and current technological advances available to them. Additionally students will explore current resources both internal and external to the University, and how to utilize the World Wide Web as a research tool.

**UNIV102 Confidence Building and Study Skills in Mathematics (2 Credits)**
A mathematics preparatory class designed to facilitate a student's transition toward fundamental studies mathematics, including study skills and strategies for success.
**Restriction:** Must be in uTerp Individual Admits program.

**UNIV104 Reading and Writing at the College Level (1 Credit)**
A workshop designed to enhance students' college level reading and writing abilities to include study skills and strategies for success.
**Restriction:** Must be in uTerp Individual Admits program.

**UNIV106 The Transfer Student in the University (1 Credit)**
This course is designed to assist students in making a successful transition to the University of Maryland (UMD) and to serve as an extended orientation to campus living and learning.
**Restriction:** Must be a first-semester transfer student.
**Credit Only Granted for:** UNIV106 or EDCP108G.

**UNIV107 Science Technology Engineering Mathematics Colloquium (1 Credit)**
For students interested in pursuing a STEM related major. Introduces students to the fundamentals of career and major exploration and career development within the various disciplines of STEM.
**Restriction:** Must be a current student in Letters & Sciences.

**UNIV108 Business Exploration Series Colloquium (1 Credit)**
For students interested in pursuing a business career. Students learn the fundamentals of career development and what the internship/job search process entails.
**Restriction:** Must be a current student in Letters and Science.

**UNIV190 National Scholarships for International Goals (1 Credit)**
Prepares first- and second-year students with international interests such as study abroad, language learning, and international careers to apply for nationally competitive scholarships, including how to write an effective personal statement. The course will help students focus and explore their interests, and connect these interests to current events. It will be of particular interest to students preparing for service-oriented and internationally focused careers.
**Restriction:** Freshman or Sophomore Standing.

**UNIV218 Study Abroad Exploration (3 Credits)**
Topics and assignments will vary by travel site.
**Restriction:** Must be in designated Study Abroad programs.
**Repeatable to:** 6 credits if content differs.

**UNIV269 Connecting Across Cultures (1 Credit)**
An examination of culture to guide study abroad students through the stages of cross cultural adjustment and to promote cultural competency by providing the motivation, knowledge and skills necessary to work with diverse individuals and teams.
**Restriction:** Must be in a study abroad program.

**UNIV318 Special Topics in Study Abroad (3 Credits)**
Topics and assignments will vary by travel site, as indicated by subtitles such as Italian Art, Chinese History, and French Theater.
**Restriction:** Must be in a designated Study Abroad program; and must not have six credits of CPSP379 if College Park Scholar student; and freshman standing or higher.

**UNIV339 McNair Research Methods and Writing (2-6 Credits)**
As an introduction to qualitative and quantitatvie research methods, students will be taught how to: (1) create, analyze, and disseminate knowledge conceptually and empirically; (2) write a research document; (3) use the IRB process; (4) develop research posters; (5) read and evaluate research studies; (6) read and understand statistics; (7) conduct interviews, develop surveys, and design experiments; and (8) communicate effectively to public audiences.
**Restriction:** Must have earned a minimum of 60 credits.

**UNIV348 Federal Semester Seminar (3 Credits)**
This topical seminar will approach Federal policy formation through a combination of framework-based and content-specific considerations. Content and themes will vary. The Federal Semester is an offering of the Office of Undergraduate Studies in conjunction with several academic colleges and the University Career Center.
**Restriction:** Must be in the Federal Semester program; and permission of UGST-Undergraduate Studies; and junior standing or higher.
**Repeatable to:** 6 credits if content differs.

**UNIV349 Federal Semester Experiential Learning (1-6 Credits)**
This is the internship component of the Federal Semester program, an offering of the Office of Undergraduate Studies in conjunction with several academic colleges and the University Career Center.
**Prerequisite:** UNIV348.
**Restriction:** Must be in the Federal Semester program; and must have a Learning proposal approved by the Office of Undergraduate Studies and student's internship sponsor; and junior standing or higher.
**Repeatable to:** 6 credits if content differs.

**UNIV362 Designing Your Life after College (2 Credits)**
Helps students anticipate and prepare for changes in finances, social life, health, and career dynamics they are likely to experience as they transition from college to working full-time. It focuses on understanding what resources students have as they enter the workforce as critical for navigating post-graduation changes successfully. It offers an overview of financial, risk management and professional development approaches to increase students' confidence regarding post-graduation decisions; in addition, it develops their creative problem solving and reflection skills to help them align the outcomes of their decisions with their values.
**Restriction:** Must have earned a minimum of 60 credits.

**UNIV378 Beyond the Classroom Experiential Learning (1-3 Credits)**
This is the internship component of the Beyond the Classroom program in which students hold internships at organizations such as governmental units and non-profit agencies.
**Prerequisite:** UNIV325.
**Restriction:** Must be in the Beyond the Classroom program; and must have proposal approved by director of Beyond the Classroom.

**UNIV389 Special Topics in Undergraduate Studies (3 Credits)**
Courses will focus on interdisciplinary topics and will be planned in cooperation with Undergraduate Studies.
**Restriction:** Freshman standing.
**Repeatable to:** 6 credits if content differs.

**UNIV399 Experiential Learning in Undergraduate Studies (1-3 Credits)**
Experiential learning offered in conjunction with certain designated Office of Undergraduate Studies programs.
**Restriction:** Must have a Learning proposal approved by the Office of Undergraduate Studies and student's internship sponsor; and junior standing or higher.
**Repeatable to:** 6 credits if content differs.

# URSP - Urban Studies and Planning

**URSP250 The Sustainable City: Exploring Opportunities and Challanges (3 Credits)**
An exploration, through an interdisciplinary approach, of a number of issues related to making cities more sustainable in terms of environmental protection, economic opportunity, and social justice. The course assist students to develop skills in critical analysis and systems thinking and to use those skills in analyzing sustainability related problems and potential solutions, and to expand students' understanding of the political implications of crafting and moving towards a sustainable urban future.

**URSP372 Diversity and the City (3 Credits)**
Exploration of the different needs of diverse economic, racial/ethnic, and gender groups that live and work in cities, the historical background of differences, the impact of societal structures and group cultures, and how public and private policies do and can affect different groups.

# USLT - Latina/o Studies

**USLT201 U.S. Latina/o Studies I: An Historical Overview to the 1960's (3 Credits)**
Interdisciplinary course focusing on demographics, terminology and social constructs of race, class, ethnicity, indigeneity, gender, and sexuality associated with the historical and political roots of US Latinidades. Examines the formation, evolution an adaptation of US Latina/o communities as critical field of inquiry.

**USLT202 US Latina/o Studies II: A Contemporary Overview 1960's to present (3 Credits)**
Interdisciplinary course on emerging populations of Latinos in the 20th century with a focus on the multiple waves of latino immigration as a result of neocolonialism, imperialism, globalization and transnationalism. Examines the positioning of immigrant waves in the political, sociocultural and historical contexts of US Latinidades.

**USLT269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**USLT320 Afro-Latinx Diasporas (3 Credits)**
Examines the history of the African diaspora and the Afro-Latinx populations in the United States. Explores transnational migrations, comparative slave systems, labor, community formation, gender, sexuality, popular culture, and the changing meanings of blackness and latinidad.
**Credit Only Granted for:** USLT319A, USLT320, or AMST328E.
**Formerly:** USLT319A.

**USLT369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.

**USLT401 Latinas/os and US Popular Culture (3 Credits)**
An examination of the relationship between Latinas/os and popular culture in the United States. Using theoretical lenses drawn from cultural studies, visual culture studies, critical race theory, borderlands theory, and feminism, the course analyzes multiple texts from time frames past and present. Explores issues such as exclusion from and inclusion within US identity, transnational identifications and cultural flows, ethnoracial stereotyping and resistance to it, and intersections of Latina/o identity with aspects of class, race, sexuality, and gender. Investigates art, TV, music, cinema, and everyday lived experience.
**Credit Only Granted for:** USLT401, USLT498B, or AMST498M.
**Formerly:** USLT498B.

**USLT403 Citizens, Refugees, and Immigrants (3 Credits)**
Citizenship, Refugee and Immigrant are guiding categories that often define the Latina/o community in the United States. Employing this analytical lens, this course critically engages with notions of exclusion and inclusion, which included documentation, status, race, gender, and power. To better understand how these ideas and processes work, students are introduced to the history of Latina/o migration, US immigration policies, racial formation theory, gender construction, borderland theory, and the politics of territoriality.
**Credit Only Granted for:** USLT403, USLT498I, AMST498N, or IMMR419D.
**Formerly:** USLT498I.

**USLT420 U.S. Latinas/os on the Silver Screen: The Silent Era to the Present Day. (3 Credits)**
Combining media theory and film history, this course considers the film industry's relationship to Latinidad, examining issues such as the shift from silent film to sound, the impact made on Latina/o images by the Second World War, and Latinas/os in the Red Scare. The second half of the course turns its attention to self-representation by Latina/o filmmakers and empathetic images created by whites in and after the 1970s. Some of the questions that the course addresses include: How have Latinas/os been depicted in Hollywood history? How have inter-American foreign relations shaped the US Latina/o image? How have Latina/o filmmakers confronted issues such as racism and sexism in the United States?
**Credit Only Granted for:** USLT420, USLT498A or AMST498G.
**Formerly:** USLT498A.

**USLT430 Globalization and the Diversifying U.S. (3 Credits)**
While often talked about as a recent phenomenon and one focused on capital, the ebbs and flows of globalization has a long history among Latina/o communities in the United States. The impact and consequences of globalization can be seen in US foreign policy in Latin America. For instance, Operation Bootstrap in Puerto Rico and the Maquiladores on the Mexico and U.S. border. At the same time, it has shaped immigration policies and the social. political and cultural experiences of Latina/o workers in the U.S. Often blamed for "taking " jobs, this course takes a deeper look at the concrete reasons for the rise of globalism and its impact on Latina/o communities in the US.
**Credit Only Granted for:** USLT430, USLT498N, AMST498W, or IMMR419J.
**Formerly:** USLT498N.

**USLT450 Central Americans and the United States: Culture, Politics, and Community (3 Credits)**
With attention to history, memory, politics, and culture, this course examines the relationships, conflicts, and exchanges of people and power between the United States and the Central American isthmus. We will investigate the role of the US government and military, as well as US corporate interests and US-backed dictatorships, in the culture, politics, and economy of nations including El Salvador, Nicaragua, Guatemala, and Honduras. Through literature, feature films, documentary films, theatre, poetry, and other mediums, the class will analyze responses to this history in Central American cultural productions originating both from the isthmus and from Central Americans living in the United States. In addition to US interventions in the Americas, the course will examine migration from Central America to North America and will conclude by exploring the lives and activities of Central Americans living in the USA.
**Credit Only Granted for:** AMST498C, USLT450 or USLT498D.
**Formerly:** USLT498D.

**USLT460 Revolutions and Diasporas (3 Credits)**
How have revolutions in Latin America influenced the history of US immigration, refugee, and asylum policies? How have they changed US history, culture, experience, geography, politics and the future? This course examines both the history of major revolutions in Latin America and their impact on Latinx diasporic and immigrant communities in the US. It investigates questions of slavery and freedom US expansionism, radical politics, Third World liberation movements, and the politics of asylum and US immigration policies. Students in the course will learn transnationalist, diasporic, borderlands and other forms of Latinx historical methods. In addition, the course will focus on race, class, gender, sexuality, and the politics of location.
**Credit Only Granted for:** USLT460, USLT498R, or AMST498B .
**Formerly:** USLT498R.

**USLT480 Race and Nation in U.S. Cinema (3 Credits)**
From the 1915 release of D.W. Griffith's The Birth of a Nation to the present, cinema has been a crucial medium through which cultural producers have advanced and contested concepts of ethnoracial and national identity in the US. This course adopts a historically-grounded practice of media criticism to understand the ideology and iconography of both Hollywood's studio system and independent cinema. The course requires students to examine film and identity through multiple, racial, methodological and theoretical lenses, including film history, and film and media theory. Focus will be the cinematic politics and poetics of racial exclusion and inclusion, empathy and disidentification, power and resistance, and the shaping of a national "imagined community." We will pursue how ideas about class, sexuality, gender, and disability have informed ideologies concerning race and nation. Classes will be divided between lecture, film viewings, and, most importantly, class discussions.
**Credit Only Granted for:** AMST498P, USLT480, or USLT498C.
**Formerly:** USLT498C.

**USLT488 US Latina/o Senior Seminar (3 Credits)**
A variable topics seminar that exposes students to interdisciplinary critical readings, writings, and research in U.S. Latina/o Studies. Interdisciplinary research methodologies are broadly addressed. Students will gain skills and practice in reading critical analytic texts and will develop writing skills.
**Recommended:** USLT202 or USLT201.
**Restriction:** Senior standing; and permission of instructor.
**Repeatable to:** 9 credits if content differs.

**USLT498 US Latina/o Studies: Special Topics (3 Credits)**
Specific content to be announced when courses are offered.
**Prerequisite:** USLT202 or USLT201.
**Restriction:** Junior standing or higher.
**Repeatable to:** 9 credits if content differs.

# WEID - Words of Engagement Intergroup Dialogue Program

**WEID139 Navigating Social Identity Difference through Intergroup Dialogue (1 Credit)**
Engages students, from one or more cultural identity groups, in facilitated dialogue about the similarities and differences of experience that exist within a group and/or between and across groups. The goal of intergroup dialogue is for students to develop comfort with, and skill for, discourse on identity-based topics toward the end of fostering positive, meaningful, and sustained cross-group relationships. Whereas in debate, students learn to listen to gain advantage, in intergroup dialogue, students learn to listen to gain understanding. In so doing, students develop increased multicultural interaction facility, heightened intergroup awareness and sensitivity, and greater commitment to civic engagement.
**Prerequisite:** Completion of on-line enrollment form.
**Cross-listed with:** ENES338.
**Repeatable to:** 6 credits if content differs.
**Credit Only Granted for:** CHSE338, EDHI338, ENES338 or WEID139.
**Formerly:** CHSE338.

# WGSS - Women, Gender, and Sexuality Studies

**WGSS115 Gender, Race and Computing (3 Credits)**
Race and gender have shaped computing from its earliest histories to contemporary debates over bias in search algorithms, surveillance, and AI. As computational processes shape ever more dimensions of everyday life from the personal to the global scale, understanding how they operate and how power operates within them grows ever more important. Combating racism and sexism is not as simple as ensuring the pool of programmers and engineers is more diverse; structures of power are embedded in digital technologies as they are in all aspects of our society, and we must learn to perceive their operation if we hope to transform them. We will examine how racism and sexism operate in the field of computer science and in everyday uses of digital technologies, while studying how feminist and racial justice movements have created alternative approaches. This class is for anyone who wishes to better understand the relationships between digital technology, structural power, and social justice.
**Cross-listed with:** CMSC115.
**Restriction:** Must not have taken CMSC216 or higher.
**Credit Only Granted for:** WGSS115 or CMSC115.

**WGSS200 Introduction to WGSS: Gender, Power, and Society (3 Credits)**
Examines constructions of race, class, sexuality, ability, and gender relations from a social science multi-disciplinary perspective. The course interrogates the ways that systems of hierarchy and privilege are created, enforced, and intersect through the language of race, class, sexuality, and national belonging. The course will provide students with the skills to examine how systems of power manifest in areas such as poverty, division of labor, health disparities, policing, violence. In addition to examining the impact of systems of power, students will reflect on their own location within the exercise of racialized, and gendered power relations. This course encourages students to understand and critique these systems both personally and politically.
**Credit Only Granted for:** WMST200 or WGSS200.
**Formerly:** WMST200.

**WGSS210 Love, Labor, and Citizenship: Women in America to 1880 (3 Credits)**
An examination of the economic, family, and political roles of colonial slave, immigrant and frontier women in America from the pre-industrial colonial period through the early stages of 19th-century industrialization and urbanization.
**Cross-listed with:** HIST210.
**Credit Only Granted for:** HIST210, WMST210 or WGSS210.
**Formerly:** WMST210.

**WGSS211 Women in America Since 1880 (3 Credits)**
An examination of women's changing roles in working class and middle class families, the effects of industrialization on women's economic activities and status, and women's involvement in political and social struggles, including those for women's rights, birth control, and civil rights.
**Cross-listed with:** HIST211.
**Credit Only Granted for:** HIST211, WMST211 or WGSS211.
**Formerly:** WMST211.

**WGSS212 Women in Western Europe 1750-Present (3 Credits)**
An analysis of the economic, family, and political roles of European women from 1750 to the present. The effects of industrialization on women's work and status, the demographic parameters of women's lives, and women's participation in political events from market riots to suffrage struggles.
**Cross-listed with:** HIST212.
**Credit Only Granted for:** HIST212, WMST212 or WGSS212.
**Formerly:** WMST212.

**WGSS230 Introduction to Humanities, Health, and Medicine (3 Credits)**
An overview of the historical, cultural, ethical, and spiritual dimensions of medicine, human health, disease, and death from the points of view of various humanistic disciplines.
**Cross-listed with:** ARHU230, ENGL254, HIST219N.
**Restriction:** Permission of ARHU-English Department.
**Credit Only Granted for:** ARHU230 , ENGL289C, ENGL254, ARHU298A, HIST219N, or WGSS230.

**WGSS250 Introduction to WGSS: Art and Culture (3 Credits)**
Provides students with a critical introduction to the ways that art and art activism have served as a conduit to understanding and challenging systems of inequity and practices of normativity. Interrogating the categories of gender, sexuality, race, class, ability, the course will provide students with an examination of how artists have responded to pressing social justice issues of their eras. While the course centers visual art, students will also engage genres such as music, plays, literature, digital and performance art as arenas of social change.
**Credit Only Granted for:** WMST250 or WGSS250.
**Formerly:** WMST250.

**WGSS255 Reading Women Writing (3 Credits)**
Explores literary and cultural expressions by women and their receptions within a range of historical periods and genres. Topics such as what does a woman need in order to write, what role does gender play in the production, consumption, and interpretation of texts, and to what extent do women comprise a distinct literary subculture. Interpretation of texts will be guided by feminist and gender theory, ways of reading that have emerged as important to literary studies over the last four decades.
**Cross-listed with:** ENGL250.
**Credit Only Granted for:** ENGL250, WMST255 or WGSS255.
**Formerly:** WMST255.

**WGSS263 Introduction to Black Women's Studies (3 Credits)**
Interdisciplinary exploration of Black women, culture and society in the United States. Drawn primarily from the social sciences and history with complementary material from literature and the arts.
**Cross-listed with:** AASP263.
**Credit Only Granted for:** WMST263, AASP298I, WGSS263 or AASP263.
**Formerly:** WMST263.

**WGSS264 Quare/Queer Contentions: Exploration of Sexualities in the Black Community (3 Credits)**
Centering the subjectivities of queer people of color generally and more specifically, Black people (as the word "quare" invites us to do), Quare/Queer Contentions takes up key moments within the history of the Black community and asks us to consider the work and presence of LGBTQ people in these moments. The course also contends with the everyday experiences of LGBTQ subjects in the Black community. Quare/Queer Contentions, therefore, interrogates the material realities of Black queer people in the context of family, religion, cultural/creative work, among others. Interdisciplinary in orientation, the course will employ primary and secondary texts, film, art, autobiographical narratives and policy data.
**Cross-listed with:** LGBT264, AASP264.
**Credit Only Granted for:** LGBT264, AASP264, WMST264 or WGSS264.

**WGSS265 Constructions of Manhood and Womanhood in the Black Community (3 Credits)**
Investigates the ways that African Americans are represented and constructed in public and private spheres and explores the social constructions and representations of Black manhood and womanhood from various disciplinary perspectives.
**Cross-listed with:** AASP265.
**Credit Only Granted for:** WMST265, AASP298B, WGSS265 or AASP265.
**Formerly:** WMST265.

**WGSS267 Introduction to Black Women's Cultural Studies (3 Credits)**
An introduction to black women's cultural production and to an understanding of how the social norms and ideals about women within black communities and in the larger society have shaped black women's own self-perceptions and behaviors and thus their cultural production.
**Credit Only Granted for:** WMST267 or WGSS267.
**Formerly:** WMST267.

**WGSS269 Special Topics in Study Abroad II (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.
**Formerly:** WMST269.

**WGSS271 Monsters and Racism: Black Horror and Speculative Fiction (3 Credits)**
The previous decade has been considered a renaissance for Black Horror. From Get Out to Lovecraft Country, the genre has enjoyed unprecedented mainstream media buzz and accolades. This course looks at contemporary Black horror and speculative fiction as cultural texts which put into question our notions of human(e) and inhuman(e) through critiques of white supremacy and accompanying oppressions. Students will learn a host of critical skills through close reading and analysis of literature and film by Black creators such as Jordan Peele, Misha Green, Toni Morrison, Jewelle Gomez, and Octavia Butler. With the ability to interpret cultural texts using literary criticism, film analysis, history, cultural studies, ethnic studies, feminist theory, and the social sciences, students will connect these texts to continuing historical and contemporary issues of racial and cultural oppression such as medical discrimination, policing and criminalization, misogynoir, and racialized capitalism.
**Cross-listed with:** AAAS271, ENGL289J.
**Credit Only Granted for:** AAAS271, ENGL289J, HONR299Y, HNUH238W, WGSS271 or WGSS298W.
**Formerly:** HNUH238W.

**WGSS275 World Literature by Women (3 Credits)**
Comparative study of selected works by women writers of several countries, exploring points of intersection and divergence in women's literary representations.
**Cross-listed with:** CMLT275.
**Credit Only Granted for:** WMST275, CMLT275 or WGSS275.
**Formerly:** WMST275.

**WGSS280 Gender and Science in Film and Media (3 Credits)**
Isaac Azimov once said of science fiction that it is the genre that "deals with the reaction of human beings to changes in science and technology." With this definition in mind, we will embark on a critical exploration of sci-fi film and other media, using it as a lens for analyzing society's deepest fears and most furtive hopes. Our investigation will center on the liminal space between hegemonic culture and its prescribed excesses. These liminal spaces--between self and other, disability and enhancement, cultural hybridization, and gender crossing--shift in response to real-world sociopolitical tensions. We will consider feminist and anti-racist media scholars' concerns over representation, authorship and ideology alongside questions of technological change. Students will use analytical and creative assignments to explore not only how the scientific imaginary serves as fertile ground for feminist, disability, and anti-racist critique, but also provides a locus for alternative futures.

**WGSS290 Bodies in Contention (3 Credits)**
Explores the contributions of feminist scholarship in framing and resolving contemporary controversies concerning gendered bodies. It includes the ways in which knowledge about the human body has been shaped by cultural ideas of gender, race, sexuality and ability.
**Credit Only Granted for:** WMST298D or WGSS290.
**Formerly:** WMST298D.

**WGSS291 Racialized Gender and Rebel Media (3 Credits)**
An introduction to the interdisciplinary field of women's studies and an exploration of the ways in which media has been used as a platform for racial justice, feminist activism, and cultural transformation, with a principal focus on the expressions of women of color. The goals of the course are to explore how different forms of media shape the stories which circulate about race, femininities, masculinities, ethnicities, sexualities, religiosity, power and difference, and to examine how various media formats been used to disrupt dominant stories, to tell new stories, and to create differing understandings of citizenship.
**Credit Only Granted for:** WGSS291 or WMST298N.
**Formerly:** WMST298N.

**WGSS298 Special Topics in Women, Gender, and Sexuality Studies (1-3 Credits)**
Thematic exploration of a topic in women, gender, and sexuality studies.
**Repeatable to:** 6 credits if content differs.
**Formerly:** WMST298.

**WGSS298L History of Sexuality in America (3 Credits)**
Explores the social construction of sexualities from the first colonial settlement to the modern era in the United States. Analyzes the implications of these understandings for power relations in U.S history.
**Cross-listed with:** HIST213.
**Credit Only Granted for:** HIST213, WMST298L or WGSS298L.

**WGSS298N The Politics of Sexuality in America: A Historical Approach (3 Credits)**
Why do particular issues about sexuality hold such an important place in American political debates? What animates these controversies and what can a historical perspective on these issues add to our understanding of modern sexual politics? This class explores the historical sexual politics that undergird contemporary debates concerning sexuality in America. It focuses on topics that garner significant public attention - Reproductive rights - LGBTQ rights - Sexting - and explores the histories that undergird Americans disagreements.
**Cross-listed with:** HIST289N.
**Credit Only Granted for:** HIST289N or WGSS298N.

**WGSS298W Monsters and Racism: Black Horror and Speculative Fiction (3 Credits)**
The previous decade has been considered a renaissance for Black Horror. From Get Out to Lovecraft Country, the genre has enjoyed unprecedented mainstream media buzz and accolades. This course looks at contemporary Black horror and speculative fiction as cultural texts which put into question our notions of human(e) and inhuman(e) through critiques of white supremacy and accompanying oppressions. Students will learn a host of critical skills through close reading and analysis of literature and film by Black creators such as Jordan Peele, Misha Green, Toni Morrison, Jewelle Gomez, and Octavia Butler. With the ability to interpret cultural texts using literary criticism, film analysis, history, cultural studies, ethnic studies, feminist theory, and the social sciences, students will connect these texts to continuing historical and contemporary issues of racial and cultural oppression such as medical discrimination, policing and criminalization, misogynoir, and racialized capitalism.
**Cross-listed with:** HNUH238W.
**Credit Only Granted for:** HONR299Y, HNUH238W, or WGSS298W.
**Formerly:** HONR299Y.

**WGSS301 Introduction to Research in Gender, Race, and Queer Studies (3 Credits)**
Primarily a research skills-building course, focusing especially on interdisciplinary approaches to research. Encompasses basic library skills, conceptualizing a research question. The course is not designed to teach a specific research method but rather to as an introduction to a range of research methods commonly employed in feminist, critical race, and queer studies with some opportunity to begin to apply them. Considers the ethical dilemmas and political implications embedded in research projects.
**Restriction:** Permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies; Must be enrolled in a Harriet Tubman Department of Women, Gender, and Sexuality Studies program.
**Credit Only Granted for:** WMST301 or WGSS301.
**Formerly:** WMST301.

**WGSS302 Feminist, Critical Race, and Queer Theories (3 Credits)**
Introduces students to some of the major concepts in feminist, critical race, and queer theories. It examines the questions: What is theory? What forms does theory take? What is the relationship between theory and practice? What is the role of theory in political and social action? In art? In personal life? What does it mean to do theory?
**Prerequisite:** 6 credits in LGBT, WMST, WGSS or courses that are cross-listed with these.
**Credit Only Granted for:** WMST302, WGSS302 or WMST400.
**Formerly:** WMST302.

**WGSS310 Transgender Studies (3 Credits)**
Introduces students to the interdisciplinary field of transgender studies, providing a history of the field and engaging current debates within it. Students will explore the emergence and consolidation of trans identities, practices, cultures, and knowledges across medical, historical, sociological, cultural, and artistic contexts, paying particular attention to dynamics of race, class, and ability, to global and transnational difference, and to the implications of transgender studies for understanding gender and sexuality overall.
**Cross-listed with:** LGBT310.
**Credit Only Granted for:** LGBT310, WMST310 or WGSS310.

**WGSS314 Black Women in United States History (3 Credits)**
Black American women's history from slavery to the present. Focused on gaining a fuller understanding of the effect of race, class and gender on the life cycles and multiple roles of Black women as mothers, daughters, wives, workers and social-change agents.
**Cross-listed with:** AASP313.
**Restriction:** Sophomore standing or higher.
**Credit Only Granted for:** AASP313, WMST314 or WGSS314.
**Formerly:** WMST314.

**WGSS315 Intro to Fat Studies: Fatness, Blackness and Their Intersections (3 Credits)**
Examines fatness as an area of human difference subject to privilege and discrimination that intersects with other systems of oppression based on gender, race, class, sexual orientation, and ability. Though we will look at fatness as intersectional, this course will particularly highlight the relationship between fatness and Blackness. We approach this area of study through an interdisciplinary humanities and social-science lens which emphasizes fatness as a social justice issue. The course closes with an examination of fat liberation as liberation for all bodies with a particular emphasis on performing arts and activism as a vehicle for liberation and challenging fatmisia.

**WGSS319 Workshops in Gender, Race, and Queer Studies (3 Credits)**
Topics will change each semester but all workshops will be designed to have students think transdisciplinarily and interdisciplinarily about a specific topic or issue and to understand how differing approaches shape knowledge. Assignments within the workshops are aimed at students developing their skills in forms of presentation beyond the written essay, e.g. oral argument, digital or creative projects. Collaborative work must be central to all workshop courses; these collaborative activities do not preclude the possibility of individual research/writing assignments but the Workshops should emphasize conversation, debate, collaboration, and critique more so than the individually authored essay.
**Repeatable to:** 9 credits if content differs.
**Formerly:** WMST319.

**WGSS320 Women in Classical Antiquity (3 Credits)**
A study of women's image and reality in ancient Greek and Roman societies through an examination of literary, linguistic, historical, legal, and artistic evidence; special emphasis in women's role in the family, views of female sexuality, and the place of women in creative art. Readings in primary sources in translation and modern critical writings.
**Cross-listed with:** CLAS320, HIST328W.
**Credit Only Granted for:** CLAS320, WMST320, WGSS320 or HIST328W.

**WGSS325 The Sociology of Gender (3 Credits)**
Institutional bases of gender roles and gender inequality, cultural perspectives on gender, gender socialization, feminism, and gender-role change. Emphasis on contemporary American society.
**Prerequisite:** 3 credits in SOCY courses.
**Cross-listed with:** SOCY325.
**Credit Only Granted for:** SOCY325, WMST325 or WGSS325.
**Formerly:** WMST325.

**WGSS326 Biology of Reproduction (3 Credits)**
The biology of the reproductive system with emphasis on mammals and, in particular, on human reproduction. Hormone actions, sperm production, ovulation, sexual differentiation, sexual behavior, contraception, pregnancy, lactation, maternal behavior and menopause.
**Prerequisite:** BSCI170 and BSCI171; or BSCI105; or permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies; or permission of CMNS-Biological Sciences UG Program.
**Cross-listed with:** BSCI342.
**Credit Only Granted for:** BSCI342, WMST326 or WGSS326.
**Formerly:** WMST326.

**WGSS336 Psychology of Women (3 Credits)**
A study of the biology, life span development, socialization, personality, mental health, and special issues of women.
**Prerequisite:** PSYC100.
**Cross-listed with:** PSYC336.
**Credit Only Granted for:** PSYC336, WMST336 or WGSS 336.
**Formerly:** WMST336.

**WGSS348 Literary Works by Women (3 Credits)**
The context, form, style and meaning of literary works by women.
**Prerequisite:** Must have completed at least one lower-level English literature course and one other lower-level English course; or Permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies.
**Cross-listed with:** ENGL348.
**Repeatable to:** 6 credits if content differs.
**Formerly:** WMST348.

**WGSS358 Undergraduate Teaching Assistantship (3 Credits)**
Students work under the supervision of a faculty mentor to assist with an undergraduate LGBT or WGSS course while also becoming conversant in feminist, critical race, and queer pedagogical debates and approaches.
**Restriction:** Permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies.
**Repeatable to:** 9 credits.
**Formerly:** WMST358.

**WGSS360 Caribbean Women (3 Credits)**
An interdisciplinary analysis of the lives and experiences of women across the Caribbean region, through an examination of their roles in individual, national, social and cultural formations. Special emphasis on contemporary women's issues and organizations.
**Cross-listed with:** AASP361.
**Credit Only Granted for:** WGSS360, WMST360 or AASP361.
**Formerly:** WMST360.

**WGSS368 Undergraduate WGSS Internship (3-6 Credits)**
Undergraduate Internship in a position related to women, gender, and sexuality studies and overseen by a member of the WGSS faculty.
**Restriction:** Permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies; and must have Learning Proposal approved by WGSS Academic Advisor; and junior standing or higher.
**Repeatable to:** 9 credits if content differs.
**Formerly:** WMST386 and WMST368.

**WGSS369 Special Topics in Study Abroad III (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.
**Formerly:** WMST369.

**WGSS370 Black Feminist Thought (3 Credits)**
Examines the ideas, words and actions of Black women writers, speakers, artists, and activists in the United States.
**Prerequisite:** 1 course in AASP; or 1 course in WGSS.
**Cross-listed with:** AASP371.
**Credit Only Granted for:** WMST370, WGSS370 or AASP371.
**Formerly:** WMST370.

**WGSS378 Undergraduate Research and Creative Works Assistantship (1-3 Credits)**
The Undergraduate Research Assistant provides an opportunity to develop a deep understanding of specific research methods and topics while involving the student in a professional role that requires ethical responsibility. The precise syllabus for the URA will be personalized to the student's interests and abilities, as well as to the specific research project and the Faculty Mentor's expectations. The student will meet with the Faculty Mentor prior to enrolling for a URA in order to determine the responsibilities and learning goals for the semester.
**Restriction:** Permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies.
**Repeatable to:** 9 credits if content differs.
**Formerly:** WMST378.

**WGSS379 Topics in Women, Gender, and Sexuality Studies (1-3 Credits)**
Thematic exploration of a topic in women, gender, and sexuality studies.
**Repeatable to:** 9 credits if content differs.
**Formerly:** WMST379.

**WGSS408 Literature by Women Before 1800 (3 Credits)**
Selected writings by women in the medieval and early modern era.
**Prerequisite:** Must have completed two English courses in literature; or permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies.
**Cross-listed with:** ENGL408.
**Repeatable to:** 9 credits if content differs.
**Formerly:** WMST408.

**WGSS410 Women of the African Diaspora (3 Credits)**
Explores the lives, experiences, and cultures of women of Africa and the African diaspora--African-America, the Caribbean, and Afro-Latin America. A variety of resources and materials will be used providing a distinctive interdisciplinary perspective.
**Credit Only Granted for:** WMST410 or WGSS410.
**Formerly:** WMST410.

**WGSS420 Asian American Women: The Social Construction of Gender (3 Credits)**
Examines the intersection of gender, race and class as it relates to Asian American women in the United States; how institutionalized cultural and social statuses of gender, race, ethnicity and social class produce and reproduce inequality with implications for Asian Americans and the broader society.
**Cross-listed with:** AAST420.
**Restriction:** Must not have completed WMST420.
**Credit Only Granted for:** AAST420, WMST420 or WGSS420.

**WGSS425 Gender Roles and Social Institutions (3 Credits)**
Relationship between gender roles and the structure of one or more social institutions (e.g., the economy, the family, the political system, religion, education). The incorporation of gender roles into social institutions; perpetuation or transformation of sex roles by social institutions; how changing gender roles affect social institutions.
**Credit Only Granted for:** SOCY425, WMST425 or WGSS425.
**Formerly:** WMST425.

**WGSS428 Topics in Women, Gender, and Sexuality Studies (1-3 Credits)**
Thematic exploration of a topic in women, gender, and sexuality studies.
**Repeatable to:** 9 credits if content differs.
**Formerly:** WMST428.

**WGSS444 Feminist Critical Theory (3 Credits)**
Issues in contemporary feminist thought that have particular relevance to textual studies, such as theories of language, literature, culture, interpretation, and identity.
**Prerequisite:** WMST200, WGSS200, WMST250, WGSS250, or ENGL250.
**Cross-listed with:** ENGL444.
**Credit Only Granted for:** ENGL444, WMST444 or WGSS444.
**Formerly:** WMST444.

**WGSS448 Literature by Women of Color (3 Credits)**
Literature by women of color in the United States, Britain, and in colonial and post-colonial countries.
**Prerequisite:** Must complete two English courses in literature; or permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies.
**Cross-listed with:** ENGL448.
**Repeatable to:** 9 credits if content differs.
**Formerly:** WMST448.

**WGSS452 Women in the Media (3 Credits)**
Participation and portrayal of women in the mass media from colonial to contemporary times.
**Cross-listed with:** JOUR452.
**Credit Only Granted for:** JOUR452, WMST452 or WGSS452.
**Formerly:** WMST 452.

**WGSS454 Women in Africa (3 Credits)**
The place of women in African societies: the role and function of families; institutions such as marriage, birthing, and child rearing; ritual markers in women's lives; women in the workplace; women's associates; women's health issues; measures designed to control women's behavior; women and development.
**Credit Only Granted for:** HIST494, WMST454 or WGSS454.
**Formerly:** WMST454.

**WGSS455 Women in Medieval Culture and Society (3 Credits)**
Medieval women's identity and cultural roles: the condition, rank and rights of medieval women; their access to power; a study of women's writings and the constraints of social constructs upon the female authorial voice; and contemporary assumptions about women.
**Cross-listed with:** HIST495.
**Credit Only Granted for:** HIST495, WMST455 or WGSS455.
**Formerly:** WMST455.

**WGSS456 Women and Society in the Middle East (3 Credits)**
Examines the customs, values and institutions that have shaped women's experience in the Middle East in the past and in the contemporary Middle East.
**Recommended:** Prior coursework in Middle East studies or gender studies.
**Cross-listed with:** HIST492.
**Credit Only Granted for:** HIST492, WMST456 or WGSS456.
**Formerly:** WMST456.

**WGSS457 Redefining Gender in the U.S., 1880-1935 (3 Credits)**
Exploring changing perceptions of gender in the U.S., 1880-1935, and the impact of those changes on the day to day lives of men and women.
**Credit Only Granted for:** WGSS457 or WMST457.
**Formerly:** WMST457.

**WGSS458 Literature by Women After 1800 (3 Credits)**
Selected writings by women after 1800.
**Prerequisite:** Must have completed two English courses in literature; or permission of Harriet Tubman Department of Women, Gender, and Sexuality Studies.
**Cross-listed with:** ENGL458.
**Repeatable to:** 9 credits if content differs.
**Formerly:** WMST458.

**WGSS468 Feminist Cultural Studies (3 Credits)**
Each version of this course focuses on one or several forms of popular culture -- such as TV, music, film, cyber-culture, or genre fiction (for example, science fiction) -- and demonstrates how feminists value, critique and explain such forms. Tools of feminist cultural studies include economic and social analyses of power, race, sexuality, gender, class, nationality, religion, technology, and globalization processes.
**Repeatable to:** 9 credits if content differs.
**Formerly:** WMST468.

**WGSS469 Study Abroad Special Topics IV (1-6 Credits)**
Special topics course taken as part of an approved study abroad program.
**Repeatable to:** 15 credits if content differs.
**Formerly:** WMST469.

**WGSS471 Women's Health (3 Credits)**
The women's health movement from the perspective of consumerism and feminism. The physician-patient relationship in the gynecological and other medical settings. The gynecological exam, gynecological problems, contraception, abortion, pregnancy, breast and cervical cancer and surgical procedures. Psychological aspects of gynecological concerns.
**Cross-listed with:** HLTH471.
**Restriction:** Must be in a program in the Harriet Tubman Department of Women, Gender, and Sexuality Studies; or must be in a major within SPHL-Behavioral & Community Health department.
**Credit Only Granted for:** HLTH471, WMST471, or WGSS471..
**Formerly:** WMST471.

**WGSS486 Advanced Feminist, Critical Race, and Queer Theories (3 Credits)**
Provides undergraduates with a survey of foundational texts in the intersecting fields of feminist, critical race, and queer studies, as well as an overview of current scholarship in order to give students an opportunity to understand the origins and the development of these fields. This course is especially recommended for students interested in pursuing graduate education. Our discussions will be focused on the trajectories of these intellectual conversations as they have developed in the academy.
**Prerequisite:** WMST301 or permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies.

**WGSS487 Advanced Research Seminar in Gender, Race, and Queer Studies (3 Credits)**
A research seminar that allows students to focus their developed skills on a single topic of their own choosing while meeting regularly in seminar to discuss, critique, support, and learn from their peers' projects and assessments. Students choose a topic based on their own interests and prior coursework, perform advanced research appropriate to the question, and formulate an appropriate method of presentation of their research findings. The culminating presentation may take the form of a written paper or a creative, digital, or activist project.
**Prerequisite:** WMST300 or WGSS301; and WMST400 or WGSS302.
**Credit Only Granted for:** WMST487 or WGSS487.
**Formerly:** WMST487.

**WGSS488 Senior Seminar (3 Credits)**
Seminar for advanced majors in women's studies or other students with appropriate preparation. Interdisciplinary topics will vary each semester.
**Restriction:** Permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies.
**Repeatable to:** 9 credits if content differs.
**Formerly:** WMST488.

**WGSS489 Individual Research in Gender, Race and Queer Studies (3 Credits)**
Allows students who wish to continue the research they began in WMST487 or WGSS487 to do so under the guidance of an individual faculty mentor. Each student taking this class will develop an individual syllabus based on the project on which they are working, with the goal of developing a work of scholarship specific to their interests that can serve as an entry point for graduate study or professional work.
**Prerequisite:** WMST487 or WGSS487.
**Repeatable to:** 9 credits.

**WGSS491 Judaism and the Construction of Gender (3 Credits)**
The study of Jewish culture, religious practice, communal authority, and literature through the frame of such critical categories of analysis as gender, sexuality, masculinity, power, ethics, and the feminine.
**Prerequisite:** 1 course in JWST; or 1 course in LGBT; or 1 course in WMST or WGSS.
**Cross-listed with:** JWST491.
**Credit Only Granted for:** JWST491, WMST491 or WGSS491.
**Formerly:** WMST491.

**WGSS492 Sex, Gender, and Jewish Identity (3 Credits)**
An exploration of Jewish embodiment, including dynamics related to biological sex, culturally-framed gender, and sexuality. Topics of discussion may include transgender and intersex Jews, stereotypes and gender performance, modesty, genetics, and body alteration. Focus is on contemporary Jewish culture, framed within the larger historical and textual tradition.
**Prerequisite:** 1 course in WGSS; or 1 course in JWST; or 1 course in LGBT; or permission of instructor.
**Cross-listed with:** JWST492, LGBT448W.
**Credit Only Granted for:** JWST492, JWST409G, LGBT448W, WMST498W or WGSS492.
**Formerly:** WMST498W and JWST409G.

**WGSS496 African-American Women Filmmakers (3 Credits)**
Examines the cinematic artistry of African-American women filmmakers and the ways in which these films address the dual and inseparable roles of race and gender.
**Credit Only Granted for:** WMST496 or WGSS496.
**Formerly:** WMST496.

**WGSS497 Professional Development (1 Credit)**
To assist students in thinking about the next step post-undergraduate degree and to think long term about the importance of their WMST degree in lifelong career, personal, and political development. This course will provide students an opportunity to reflect upon where they are going beyond the B.A. and develop ways to communicate how their coursework and experiences at UMD have prepared them for the next step. The course will focus on the practicalities of resume writing, internship or job searches, etc. but also on the specific challenges/opportunities of translating interdisciplinary training to professional internship or beyond-the B.A. sites. Students may take this course in preparation for their internship (working to select an appropriate internship that can translate well to post-undergraduate aspirations) or they may take it post-internship as they determine their post-graduation steps.
**Prerequisite:** 12 credits in LGBT, WMST or WGSS courses.
**Restriction:** Must have completed a minimum of 75 credits.
**Credit Only Granted for:** WMST497 or WGSS497.
**Formerly:** WMST497.

**WGSS498 Advanced Special Topics in Women, Gender, and Sexuality Studies (1-3 Credits)**
Advanced study of a thematic topic in women, gender, and sexuality studies.
**Restriction:** Permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies.
**Repeatable to:** 9 credits if content differs.
**Formerly:** WMST498.

**WGSS498D Sex, Gender, and Sexuality in the Islamic World (3 Credits)**

**WGSS499 Independent Study (1-3 Credits)**
Research and writing or specific readings on a topic selected by the student and supervised by a faculty member of the Women's Studies Department.
**Prerequisite:** 1 course in WMST or WGSS.
**Restriction:** Permission of the Harriet Tubman Department of Women, Gender, and Sexuality Studies.
**Repeatable to:** 9 credits if content differs.
**Formerly:** WMST499.

# WMSX - Women's Studies Education Abroad

**WMSX200 Gender, Equality, and Sexuality in Scandinavia (3 Credits)**
Sweden is one of the most gender equal countries in the world and is well-known for its progressive culture supported by forward-thinking laws and legislation. This course explores how concepts of gender, body, sexuality and race intersect in current debates about changing family structures, children's rights, and new ethical dilemmas in a changing Scandinavia.
**Cross-listed with:** LGBX200.
**Credit Only Granted for:** WMSX200 or LGBX200.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**WMSX201 Sex Education and Sexual Reform in Europe (3 Credits)**
Provides insight to the ways in which sexual reform and sex education has shaped not only the history of sexuality in Europe, but also the very core of the various national identities. We will look into the different movements, campaigns, policies, and public debates regarding sexuality. We will discover the ways in which sex and sexuality are conveyed in sexual education aimed at children and youth by reading and watching examples of sex educational material.
**Cross-listed with:** LGBX201.
**Credit Only Granted for:** WMSX201 or LGBX201.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**WMSX202 Transgender in Scandinavia (3 Credits)**
This course explores the history of trans activism with a special focus on Sweden, and how legislative and medical discourses change how we think about gender identities and rights. We also explore topics such as transphobia, gender disclosure and HIV criminalization laws, reproductive rights, gender-neutral pronouns, transgender children and their families, and how race and class intersect with being trans.
**Cross-listed with:** LGBX202.
**Credit Only Granted for:** WMSX202 or LGBX202.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**WMSX203 Economics of Gender (3 Credits)**
Decisions around marriage, children, and work are taken by everyone on the planet. In this class we look at the economic elements that forge those choices. Moreover, while women's roles have changed beyond recognition in a century, we are still plagued with a dramatic under-representation of women in senior economic roles and the fact that they appear underpaid vis a vis men for doing the same work. This course looks at the factors influencing such issues, providing often surprising results.
**Additional Information:** This course is offered as part of the Maryland-in-Stockholm study abroad program. Students must apply for this program through Education Abroad: More information at ter.ps/UMStockholm. Education Abroad processes registrations for this course on behalf of students.

**WMSX204 Nice Girls, Bad Girls, and Bitches: British Women and Gender from the Vote to Thatcher (3 Credits)**
Explores the words and experiences of British women in a century of rapid social, economic and cultural transformation - when what it meant to be a 'British woman' was itself revolutionized, through decolonization and immigration. We will determine the constraints on women in war and peace, politics, education and paid work, marriage, motherhood and family, and celebrate rebels and non-conformists.
**Additional Information:** This course is offered as part of the Arts & Humanities-in-London study abroad program. Students must apply for this program through Education Abroad: More information at https://globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**WMSX300 Feminism(s) (6 Credits)**
Engages with contemporary feminist thought through literature, literary criticism, history and theory of feminism. It examines the significant debates and key concepts of feminist thought through a range of political and philosophical texts and encourages students to develop their own critical understanding of gender and equality issues in the contemporary period. Explores feminism in relation to Marxism, psychoanalysis, sexuality, post-structuralism, neo-liberalism and international feminism.
**Additional Information:** This course is offered as part of the ARHU-in-London study abroad program. Students must apply for this program through Education Abroad: More information at globalmaryland.umd.edu/offices/education-abroad/program/11854. Education Abroad processes registrations for this course on behalf of students.

**WMSX301 The Rising Generation: Youth, Age and Protest in Post-War Britain (3 Credits)**
Explores important empirical and methodological questions about age, gender and sexuality, using a case study of post-war Britain. Considers the histories of "muted groups" such as children, adolescents, women and LGBT people, while thinking about how the language used about such groups is used to structure power relations in society. Engages with the ways conservatives and radicals used the language of age and life-stage to construct visions of the future, and how the experience of childhood, adolescence, adulthood and old age changed in Britain between 1945 and 1979.

# ADMINISTRATORS, OFFICIALS AND FACULTY

## A

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Associate Professor, CMNS-Geology; Affiliate Associate Professor, AGNR-Environmental Science & Technology; B.S., North China Electric Power University, 2002; M.S., Chinese Academy of Science, 2005; Ph.D., University of Delaware, 2010.

**Zhu, Wenlu**
Professor, CMNS-Geology; B.S., Peking University, 1986; M.S., 1989; Ph.D., State University of New York-Stony Brook, 1996.

**Zhu, Xiaoping**
Professor & Chair, AGNR-Veterinary Medicine Program; D.V.M., Ningxia University, China, 1984; M.S., China Agriculture University, 1987; Ph.D., University of Wisconsin-Madison, 1997.

**Zhu, Yihang**
Assistant Professor, CMNS-Mathematics; B.S., Tsinghua University/ Qinghua University, 2012; Sc.D., Harvard University, 2017.

**Zia, Lamia**
Lecturer, ARHU-Communication; B.A., University of the Punjab-Lahore, 1998; M.A., 2002; M.A., University of Iowa, 2012; M.A., University of Texas-Tyler, 2016.

**Zickert, Christian Krogager**
Associate Professor, CMNS-Mathematics; B.S., Aarhus Universitet, 2002; M.S., 2005; Ph.D., Columbia University, 2008.

**Ziegler, Delores**
Professor, ARHU-School of Music; 2012-2013 Distinguished Scholar-Teacher. B.Mus., Maryville College, 1973; M.Mus., University of Tennessee, 1978.

**Zierden, Hannah C**
Assistant Professor, ENGR-Chemical & Biomolecular Engineering; Affiliate Assistant Professor, ENGR-Fischell Department of Bioengineering; B.S., Ohio State University, 2015; Ph.D., Johns Hopkins University, 2020.

**Zilfi, Madeline C.**
Professor Emerita, ARHU-History; B.A., Mount Holyoke College, 1964; M.A., University of Chicago, 1971; Ph.D., 1976.

**Zimmerman, Daniel J.**
Lecturer, ARHU-School of Music; B.A., Yale University, 1985; M.A., University of Chicago, 1989; Ph.D., 2002.

**Zimmerman, Jo B.**
Senior Lecturer, SPHL-Kinesiology; B.S., George Mason University, 1994; M.S., 1996.

**Zinn, Aubrey V.**
Lecturer, ARHU-English; B.A., University of Delaware, 1995; M.A., Towson University, 2018.

**Zitzewitz, Karin**
Professor & Chair, ARHU-Art History & Archaeology; B.A., Oberlin College, 1996; M.A., Columbia University, 2001; Ph.D., 2006.

**Zocal Da Silva, Barbara**
Assistant Clinical Professor, ARHU-School of Languages, Literatures, and Cultures; B.A., Universidade Estadual Paulista, 2010; M.A., University of Sao Paulo, 2015; Ph.D., 2023.

**Zotkin, Dmitry**
Adjunct Associate Professor, CMNS-Institute for Advanced Computer Studies; M.S., Moscow Institute of Physics & Technology, 1996; M.S., University of Maryland-College Park, 1999; Ph.D., 2002.

**Zou, Linda**
Assistant Professor, BSOS-Psychology; B.A., College of William & Mary, 2012; Ph.D., University of Washington-Seattle, 2019.

**Zremski, Gerald**
Lecturer, JOUR-Philip Merrill College of Journalism; B.A., Syracuse University, 1982; M.A., American University, 1996.

**Zsak, Sarah Lynn**
Lecturer, BSOS-Hearing & Speech Sciences; B.S., University of Maryland-College Park, 2004; M.A., 2014.

**Zur, Emanuel**
Associate Professor, BMGT-Accounting; Associate Professor, BMGT-Robert H. Smith School of Business; D.B.A., New York University, 2002.

**Zwicker, Matthias**
Professor & Chair, CMNS-Computer Science; Professor, CMNS-Institute for Advanced Computer Studies; M.S., Swiss Federal Institute of Technology-Zurich, 1998; Ph.D., 2003.

**Zwolak, Justyna P.**
Adjunct Assistant Professor, CMNS-Institute for Advanced Computer Studies; M.S., Nicolaus Copernicus University, 2007; Ph.D., 2011.

# UNDERGRADUATE PROGRAMS

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# ADDENDA TO THIS CATALOG

The Undergraduate Catalog is published each academic year in June prior to the fall semester. The provisions of the Undergraduate Catalog are not to be regarded as a contract between the student and the University of Maryland. The university reserves the right to change its policies, rules, regulations, requirements for graduation, course offerings, tuition, fees, other charges, or any other contents of this catalog at any time.

When necessary, the university will track changes to the Undergraduate Catalog in this addenda section:

- For addenda related to policies, rules, regulations, tuition, fees and general information, see **General Addenda**
- For addenda related to curricula (i.e., descriptions, learning outcomes, and requirements for majors, minors, and certificates), see **Curricula Addenda**

*Note: Updates to course offerings (e.g., course description changes), will be reflected in the following year's catalog and are not tracked in this addenda section.*

# GENERAL ADDENDA

This section contains addenda related to policies, rules, regulations, tuition, fees and general information. Each addendum contains an excerpt from the catalog as it was originally published as well as the change that was made. To view the full original text, see the catalog page referenced in the addendum.

## University Administration and Deans

*Under **University Administration and Deans***

- Effective September 4, 2024, a new Vice President for Marketing and Communications was appointed *(published September 4, 2024).*

### Original

Vice President for Marketing and Communications **Brian Ullmann**

### Change

Vice President for Marketing and Communications **Anne Buckley**

# CURRICULA ADDENDA

This section contains a list of addenda related to undergraduate program changes. Each listing has a summary of the modifications (i.e., changes to descriptions, learning outcomes, and requirements for majors, minors, and certificates) or indicates if the program is new. To view a program's addendum in full detail, please visit the program's catalog page as referenced in the summary below.

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## College of Information

***Under*** College of Information ***(***p. 441***)***

1. Effective Fall 2024, the Directors list was updated under the Faculty section *(published August 27, 2024).*
2. Effective Fall 2024, "iSchool" was updated to "INFO College" under the Advising and Opportunities sections (published August 27, *2024)*.

### Original

**(1) Directors:** T. Bezbabna (Assistant Director - Shady Grove), T. Clegg (Technology and Information Design Program Director), P. Duffy (Information Science Program Director - College Park), G. Madjaroff Reitz (Information Science Program Director - Shady Grove), R. Padrón (Director of Undergraduate Operations - College Park), K. Shilton (Social Data Science Program Co-Director)

**(2) iSchool**

- For any other inquiries please contact the iSchool Undergraduate Student Services Office at ugadvising.ischool@umd.edu.
- Opportunities for undergraduate research experience in the iSchool's research centers become available from time to time.
- See the Information Science program staff for information on performing research in an iSchool center or lab and contact the Campus Career Services office for assistance in obtaining off-campus positions or experiences.
- The iSchool hosts an internship and networking fair in fall and spring semesters to help students find internship sites.
- The iSchool also offers a summer internship course that allows students to partner critical reflection on professional development with an existing internship opportunity.
- Scholarships administered by the iSchool for undergraduate students include:
- This scholarship was established in 2023 to return all royalties earned on the INST352 textbook (Understanding Human Information Behavior: When, How, and Why People Interact with Information) authored by iSchool instructors Beth St. Jean, Ursula Gorham, and Elizabeth Bonsignore to one or more outstanding InfoSci students.
- Dean's Award for an Outstanding iSchool Project - The Dean’s Award for an Outstanding iSchool Project will be presented to an iSchool student or a group of students (which includes at least one iSchool student) for an outstanding design or development project completed for an iSchool course.
- The Laurence B. Heilprin Award will be presented to an iSchool student or a group of students (which includes at least one iSchool student) for an outstanding paper on a topic in library and information science which has been written for an iSchool course.
- The Dr. Joan Giesecke Best Student Paper on Health Informatics Award will be presented to a graduate student or a group of graduate students for an outstanding paper which has been written for an iSchool course and which focuses on any aspect(s) of Health Informatics.
- The iSchool defines Health Informatics broadly, including any work that focuses on health information management; health information

technologies; health data analytics; health-related information needs or behaviors; health librarianship, etc.

- The Dean's Award for Outstanding Undergraduate Research Achievement will be presented to an undergraduate student or a group of undergraduate students for an outstanding research paper or project that has been completed for an iSchool course.
- At the iSchool, faculty and students are exploring how people access and use information.
- iSchool faculty and doctoral students also participate in or have affiliations with the University of Maryland Institute for Advanced Computer Studies (UMIACS), and the Maryland Institute for Technology in the Humanities (MITH) as well as the Departments of Computer Science, English, and Sociology, the Robert H. Smith School of Business, and the College of Education.
- The iSchool is home to a number of research centers and labs:
- The HCIL, though referred to as a lab, is actually a research center that is jointly administered by the iSchool and UMIACS, and has multiple labs, faculty, and students associated with it.

### Change

**(1) Directors:** T. Bezbabna (Assistant Director - Shady Grove), P. Duffy (Information Science Program Director - College Park), S. Jackson (Social Data Science Program Assistant Director), G. Madjaroff Reitz (Information Science Program Director - Shady Grove)

**(2) INFO College**

- For any other inquiries please contact the INFO College Undergraduate Student Services Office at ugadvising.ischool@umd.edu.
- Opportunities for undergraduate research experience in the INFO College's research centers become available from time to time.
- See the Information Science program staff for information on performing research in an INFO College center or lab and contact the Campus Career Services office for assistance in obtaining off-campus positions or experiences.
- The INFO College hosts an internship and networking fair in fall and spring semesters to help students find internship sites.
- The INFO College also offers a summer internship course that allows students to partner critical reflection on professional development with an existing internship opportunity.
- Scholarships administered by the INFO College for undergraduate students include:
- This scholarship was established in 2023 to return all royalties earned on the INST352 textbook (Understanding Human Information Behavior: When, How, and Why People Interact with Information) authored by INFO College instructors Beth St. Jean, Ursula Gorham, and elizabeth bonsignore to one or more outstanding InfoSci students.
- Dean's Award for an Outstanding INFO College Project - The Dean's Award for an Outstanding INFO College Project will be presented to an INFO College student or a group of students (which includes at least one INFO College student) for an outstanding design or development project completed for an INFO College course.
- The Laurence B. Heilprin Award will be presented to an INFO College student or a group of students (which includes at least one INFO College student) for an outstanding paper on a topic in library and information science which has been written for an INFO College course
- The Dr. Joan Giesecke Best Student Paper on Health Informatics Award will be presented to a graduate student or a group of graduate students for an outstanding paper which has been written for an INFO College course and which focuses on any aspect(s) of Health Informatics.
- The INFO College defines Health Informatics broadly, including any work that focuses on health information management; health information technologies; health data analytics; health-related information needs or behaviors; health librarianship, etc.
- The Dean's Award for Outstanding Undergraduate Research Achievement will be presented to an undergraduate student or a group of undergraduate students for an outstanding research paper or project that has been completed for an INFO College course.
- At the INFO College, faculty and students are exploring how people access and use information.
- INFO College faculty and doctoral students also participate in or have affiliations with the University of Maryland Institute for Advanced Computer Studies (UMIACS), and the Maryland Institute for Technology in the Humanities (MITH) as well as the Departments of Computer Science, English, and Sociology, the Robert H. Smith School of Business, and the College of Education.
- The INFO College is home to a number of research centers and labs:
- The HCIL, though referred to as a lab, is actually a research center that is jointly administered by the INFO College and UMIACS, and has multiple labs, faculty, and students associated with it.

# German Studies Major

***Under*** German Studies Major ***(***p. 216***)***

1. **Requirements:** Effective Spring 2025, Area Requirements and Electives options were clarified and expanded *(published January 2, 2025).*
2. **Learning Outcomes:** Effective Spring 2025, changes were made to learning outcomes #2 and #4, and an additional learning outcome was added *(published January 2, 2025).*

### Original

**(1) Requirements:** See G (p. 190)erman Studies Major (p. 217).

**(2) Learning Outcomes:**

2. Students will be able to critically interpret written texts in a variety of genres (literature, realia, correspondence, newspaper and magazine articles, poems, dramas, etc.) and demonstrate knowledge of literary concepts.

4. Students will be able to demonstrate knowledge of the institutions, values, and cultural products of Germany and/or the German-speaking world.

### Change

**(1) Requirements:**

| Course | Title | Credits |
|---|---|---|
| **Area Requirements** [1] | | |
| Select a minimum of 6 credits of the following language courses: | | 6 |
| GERS315 | Practicum in Translation I | |
| GERS319 | Selected Topics in German Language Studies | |
| GERS402 | Advanced Conversation and Composition | |

| | | |
|---|---|---|
| GERS419 | Selected Topics in German Language Studies | |
| GERS473 | Variation in Contemporary German Language | |
| Select a minimum of 6 credits of the following literature courses: | | 6 |
| GERS320 | Survey of German Studies | |
| GERS322 | Highlights of German Literature and Culture | |
| GERS331 | Kafka and Film: The Uncanny in Literature and Film | |
| GERS436 | The Usual Suspects: Criminals in German Literature and Film | |
| GERS439 | Selected Topics in German Literature | |
| GERS442 | Gender and Sexuality in German Literature and Society | |
| GERS443 | Literature as Cultural Discourse | |
| GERS444 | The German-Jewish Experience | |
| GERS458 | Literary or Media Genres | |
| Select a minimum of 6 credits of the following culture courses: | | 6 |
| GERS356 | German for the Professions | |
| GERS399 | Selected Topics in German Studies | |
| GERS441 | Border Crossings and Cultural Transfers | |
| GERS449 | Selected Topics in German Studies | |
| GERS489 | Social Issues in German Culture | |
| **Elective Courses** | | |
| Select three 2xx-4xx level elective courses | | 9 |
| GERS255 | Once Upon a Time: Fairy Tales of the Brothers Grimm [2] | |
| GERS289 | Selected Topics in the Cultures of the German-Speaking Countries [2] | |
| GERS299 | Special Topics in German Studies [2] | |
| GERS339 | German Literature In Translation [2] | |
| GERS349 | Germanic Literatures in Translation [2] | |
| GERS367 | The Great Derangement: Climate, Art, and Literature [2] | |
| GERS383 | The 'Warrior' in German Culture: From Valiant Knights to Brazen Terrorists [2] | |
| GERS385 | German Cinema [2] | |
| GERS389 | Topics in German Culture [2] | |

[1] A minimum of two 3xx or 4xx level courses in each of three areas: language, literature, and culture.

[2] Taught in English

**(2) Learning Outcomes:**

2. Students will be able to critically interpret written texts reflecting a diversity of perspectives in a variety of genres (literature, realia, correspondence, newspaper and magazine articles, poems, dramas, etc.) and demonstrate knowledge of literary concepts.

4. Students will be able to demonstrate knowledge of the institutions, values, and cultural products of Germany and/or the German-speaking world, with specific attention to underrepresented experiences and cultural diversity.

5. Critically analyze issues of power related to gender, sexuality, class, race/ethnicity, and/or mental or physical ability with attention to differences across time, geography and culture and with critical awareness of one's own worldview, values, and biases.

# History Major

***Under*** History Major *(*p. 189*)*

1. **Description**: Effective Spring 2025, the program description was updated (*published January 30, 2025*).
2. **Requirements**: Effective Spring 2025, several major requirement adjustments were made (*published January 30, 2025*):
   - Require one course that covers the period of history after 1750
   - Make specializations optional
   - Require courses in 3 geographical areas outside of the US
3. **Learning Outcomes**: Effective Spring 2025, clarifications were made to learning outcomes (*published January 30, 2025*).

## Original

**(1) Description:**

The History major offers a broad variety of geographic and thematic fields of specialization (see details below). Undergraduate advisors assist all majors in planning a curriculum to meet their personal interests. Students are strongly encouraged to take advantage of study abroad programs and to acquire and/or cultivate the language skills relevant to their field of specialization. We expect students to meet with a history undergraduate advisor once every semester.

**(2) Requirements:** See History Major (p. 190)

**(3) Learning Outcomes:** See Program Learning Outcomes (p. 189).

## Change

**(1) Description:**

The History major encourages students to specialize in different geographic or thematic concentrations, but does not require it. Undergraduate advisors assist all majors in planning a curriculum to meet their personal interests. Students are encouraged to take advantage of study abroad programs and to acquire and/or cultivate the language skills relevant to their specializations. We expect students to meet with a history undergraduate advisor once every semester.

**(2) Requirements:**

Requirements for the History major are 39 credits of history course work distributed as follows: 12 credits in 1xx or 2xx-level introductory courses and including HIST208; HIST408. All courses for the major must be completed with a minimum grade of "C-", and 21 credits of the 39 total credits must be at the junior-senior (3xx or 4xx) level. An overall GPA of 2.0 in the major is required for graduation.

Students must take courses in at least three of the following geographical regions: Africa and the African Diaspora; Latin America and the Caribbean; Middle East, Asia, Europe (which includes Britain, Europe and Russia), and transregional.

Students must take at least one course in the pre-1750 period and one course in the post-1750 period.

No more than 6 credits can be fulfilled by AP and IB credits.

History majors can petition to include up to two courses taught outside the Department toward the fulfillment of the major, with the approval of the Undergraduate Committee. Courses taught outside of the History Department may fulfill geographic and/or thematic requirements. They may not be used to fulfill the departmental capstone seminars.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Introductory Courses** | | |
| HIST208 | Historical Research and Methods Seminar | 3 |
| Three courses at the 1xx or 2xx-level | | 9 |
| **Electives** | | **24** |
| **Capstone** | | |
| HIST408 | Senior Seminar [1] | 3 |
| **Total Credits** | | **39** |

[1] Should be taken in the senior year. May be substituted by HIST396 (Honors Colloquium II). HIST208 is a prerequisite for HIST408.

**(3) Learning Outcomes:**

1. Students will demonstrate their ability to find and to analyze primary and secondary sources.
2. Students will be able to think in complex ways about the bias of sources and to evaluate their reliability and origins.
3. Students will demonstrate their ability to properly cite sources and to understand the range of possibilities of where to search for evidence.
4. Students will show awareness about strategies for testing for invalid and fabricated information about the past.
5. Students will be able to situate their findings with regard to earlier scholarship and to identify their contribution.
6. Students will be able to communicate their findings clearly and persuasively.
7. Students will be able to think systematically and critically about historical information.
8. Students will distinguish facts that can be determined from questions of interpretation.
9. Students will demonstrate the ability to understand historical differences in human societies.
10. Students will demonstrate the ability to explain the value of historical study.
11. Students will demonstrate the ability to analyze historical causes and consequences, including contingency and agency.
12. Students will be able to demonstrate a historical understanding of how societies have created and maintained inequalities of power based on such perceived differences as race, class, gender, or sexuality.
13. Students will appreciate how aspects of today's society have been shaped by past inequalities.
14. Students will demonstrate an understanding of how to explore how subordinated peoples have challenged, shaped, and sometimes transformed unequal relations.
15. Students will be able to articulate how structural factors have contributed to knowledge production, including the preservation of documents and/or gaps of sources.

# INFORMATION SCIENCE MAJOR AT SHADY GROVE

***Under*** Information Science Major at Shady Grove *(*p. 497*)*

- Effective Fall 2024, an iSchool reference was updated to INFO College *(published August 27, 2024)*.

## Original

Located just outside Washington, D.C., the iSchool provides unmatched research, internship, and career opportunities with government agencies, nonprofits, and businesses that shape information science and policy.

## Change

Located just outside Washington, D.C., the INFO College provides unmatched research, internship, and career opportunities with government agencies, nonprofits, and businesses that shape information science and policy.

# Information Systems Major

***Under*** Information Systems Major *(*p. 299*)*

1. **Description:** Effective Spring 2025, "Business Area of Concentration" verbiage was removed from the program description *(published December 2, 2024).*
2. **Requirements:** Effective Spring 2025, several major requirement adjustments were made *(published November 26, 2024):*
   - Removal of the upper level economics requirement
   - Approval of additional course substitutions
   - Adjustment of List A and B courses

## Original

**(1) Description:** The Business Area of Concentration in the Information Systems (IS) program prepares students to be effective planners, users, and managers of information technologies and systems in the current environment of the technology-enabled business firm.

**(2) Requirements:** See Information Systems Major (p. 299).

## Change

**(1) Description:** The Information Systems (IS) program prepares students to be effective planners, users, and managers of information technologies and systems in the current environment of the technology-enabled business firm.

**(2) Requirements:**

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 294) | | |
| **Major Requirements** | | |
| BMGT302 | Essential Programming Skills for Business Analytics [1] | 3 |
| BMGT402 | Database Systems [2] | 3 |
| BMGT403 | Systems Analysis and Design | 3 |
| BMGT407 | Information Systems Projects | 3 |

| | | |
|---|---|---|
| Select two courses from list 'A' or one course from 'A' and one course from list 'B': | | 6 |
| List A: | | |
| BMGT400 | (Data Visualization and Web Analytics) | |
| BMGT401 | (Big Data and AI using Cloud Computing) | |
| BMGT404 | Essential Data Skills for Business Analytics [3] | |
| BMGT406 | Developing Applications for the Web and Social Media | |
| BMGT408 | Emerging Topics in Information Systems [4] | |
| BMGT485 | Project Management [5] | |
| List B: | | |
| BMGT326 | Accounting Systems | |
| BMGT430 | Data Modeling in Business | |
| BMGT461 | Entrepreneurship | |
| BMGT476 | Technology Applications in Supply Chain Management | |
| BMGT484 | Digital Marketing | |
| **Total Credits** | | **18** |

1. CMSC132 Object-Oriented Programming II or INST326 Object-Oriented Programming for Information Science is an approved substitute.
2. CMSC424 Database Design or INST327 Database Design and Modeling is an approved substitute.
3. CMSC320 Introduction to Data Science is an approved substitute.
4. Repeatable if content differs.
5. INST453 Project Management for Information Science is an approved substitute.

In addition to the major requirements listed above, please consult the Summary of Bachelor of Science Degree Requirements (All Curricula) (p. 294) on the College Requirements section or www.rhsmith.umd.edu (http://www.rhsmith.umd.edu) for a listing of additional Smith School degree requirements that apply to all Smith School majors.

# International Development and Conflict Management Minor

***Under*** International Development and Conflict Management Minor *(*p. 273*)*

- Effective Spring 2025, BSOS388 was replaced with GVPT357 *(published November 26, 2024)*.

## Original

See International Development and Conflict Management Minor (p. 273).

## Change

Requirements for the minor include the following coursework:

| Course | Title | Credits |
|---|---|---|
| **Required Courses** | | |
| GVPT354 | International Development and Conflict Management | 3 |
| GVPT355 | Capstone in International Conflict Management | 3 |
| GVPT356 | Capstone in International Development | 3 |
| ELECTIVE | Global Perspectives Elective courses from approved list | 3 |
| METHODS | One research methodology course from approved list | 3 |
| GVPT357 | (IDCM Practicum Course) | 1 |
| **Total Credits** | | **16** |

**Note:** Six credits (or two courses) can be double counted for your major and the minor. Classes must generally be completed after acceptance into the minor program, with the exception of the elective and methods requirements.

All courses used to satisfy the requirements of the minor must be completed with a grade of "C-" or better. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements.

# Persian Studies Major

***Under*** Persian Studies Major *(*p. 224*)*

- Effective Spring 2025, major requirements will be reduced to 36 credits as follows *(published January 3, 2025):*
  - Replace PERS101 and PERS102 with PERS103 and PERS104, respectively
  - Remove PERS211 and PERS212
  - Remove the Supporting Area Requirement

## Original

See Persian Studies Major (p. 224).

## Change

All students planning to pursue the major in Persian Studies should contact the undergraduate advisor for Persian, who will be responsible for placement, oversight, and record keeping.

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Core Language Sequence (12 credits)** [1] | | |
| PERS103 | (Beginning Persian I) | 3 |
| PERS104 | (Beginning Persian II) | 3 |
| PERS201 | Intermediate Persian I | 3 |
| PERS202 | Intermediate Persian II | 3 |
| **Foundation Requirements (Choose 9 credits)** [2] | | **9** |
| PERS251 | Modern Iran | |
| PERS252 | Gender and Body in Iran | |
| PERS283 | Iranian Cinema | |
| PERS371 | Introduction to Persian Literature in Translation | |
| **Electives (Choose 15 credits)** | | **15** |
| PERS280 | Art Activism in Iran | |
| PERS298 | Special Topics in Persian Studies | |
| PERS299 | Directed Study in Persian Language | |
| PERS301 | Advanced Persian I | |
| PERS302 | Advanced Persian II | |
| PERS311 | Persian Media | |
| PERS312 | Contemporary Iranian Culture | |
| PERS353 | Iranian Life in Literature and Film | |

| | | |
|---|---|---|
| PERS385 | Theatre and Dance in Iran and Afghanistan | |
| PERS386 | Experiential Learning | |
| PERS399 | Directed Study in Persian | |
| PERS405 | Media and the Current Issues in Iranian Society | |
| PERS406 | Practicum in Persian Translation | |
| PERS498 | Special Topics in Persian Studies | |
| **Total Credits** | | **36** |

[1] Once credits have been received for a higher-level language focus course, a lower-level course in the same strand may not be taken for credit. PERS201 may not be taken after PERS202, for example.

[2] Foundation Requirements may be substituted with the approval of the Undergraduate Advisor as the list of such courses will be regularly updated.

- All pre-requisites imply “or equivalent knowledge.” In cases of equivalent knowledge, required language-focused credits are replaced in consultation with, and with the written approval of, the undergraduate advisor.
- At least 15 of the 36 credits for the major must be at the upper level (courses numbered 300 or above).
- Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures (SLLC). Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

# Persian Studies Minor

***Under*** Persian Studies Minor *(*p. 225*)*

1. **Description:** Effective Spring 2025, the program description was updated *(published January 3, 2025).*
2. **Requirements:** Effective Spring 2025, program prerequisites were reorganized and reclassified as regular program requirements, as follows *(published January 3, 2025):*
   - Replace PERS101 and PERS102 with PERS103 and PERS104, respectively
   - Reclassify PERS201 as a core course
   - Remove PERS211

### Original

**(1) Description:**

This 15-credit minor (5 courses, excluding prerequisites) will provide students with a background in linguistic, literary, and cultural aspects of the study of Persian, including the cultures of Iran, Afghanistan, Persian-speaking Central Asia, and the Persian diaspora. Students will work toward linguistic competence in speaking, reading, writing, and listening. Additionally, students will be introduced to Iranian culture in its diverse perspectives, practices, and products. The Minor in Persian Studies complements a range of professions, which include careers in education, engineering, government, journalism, the arts, business, and communication.

To make an appointment to explore or declare a minor, go to http://arhu.umd.edu/academics/undergraduate-studies/minors/.

**(2) Requirements:** See Persian Studies Minor (p. 225).

### Change

**(1) Description:**

The minor in Persian Studies (21 credits) initiates students into the linguistic, literary, and cultural aspects of the study of Persian, including the cultures of Iran, Afghanistan, Persian-speaking Central Asia, and the Persian diaspora. Students attain a solid grounding in Persian and gain an in-depth understanding of the Persian culture in its diverse perspectives, practices, and products through courses offered in English.

Students interested in pursuing the minor in Persian should contact the Undergraduate Advisor. Students should declare the minor in Persian at least one year prior to graduation.

**(2) Requirements:**

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 145) | | |
| **Introductory Courses** | | |
| HIST208 | Historical Research and Methods Seminar | 3 |
| Three courses at the 1xx or 2xx-level | | 9 |
| **Electives** | | **24** |
| **Capstone** | | |
| HIST408 | Senior Seminar [1] | 3 |
| **Total Credits** | | **39** |

- No prerequisites are required for students with equivalent knowledge. Placement assessment is mandatory. (https://arhu.umd.edu/academics/foreign-language-placement/online-flpa)
- Once credits have been received for a higher-level language focus course, a lower-level course may not be taken for credit (For example, PERS201 may not be taken after PERS202).
- Up to 6 approved credits transferred from other institutions can count toward language requirements for the minor (see https://registrar.umd.edu/transfer-credit).
- Students placing out of language courses due to prior proficiency must complete substitute courses in consultation with the Undergraduate Advisor.
- Electives may be substituted in consultation with the Undergraduate Advisor.
- Courses may not be used to fulfill the requirements of two minors.
- At least 9 credits must be taken at the upper-level (courses numbered 300 or above).
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.

# Physics Major

***Under*** Physics Major *(*p. 361*)*

- Effective Fall 2024, credits were specified for PHYS4XY under the Applied Physics Specialization *(published August 16, 2024)*.

### Original

See Physics Major (p. 361).

### Change

**ADDITIONAL COURSES REQUIRED FOR THE APPLIED PHYSICS SPECIALIZATION:**

| Course | Title | Credits |
|---|---|---|
| ENME272 | Introduction to Computer Aided Design | 2 |
| PHYS313 | Electricity and Magnetism I | 4 |
| PHYS371 | Modern Physics | 3 |
| PHYS375 | Experimental Physics III: Electromagnetic Waves, Optics and Modern Physics | 3 |
| PHYS401 | Quantum Physics I | 4 |
| PHYS404 | Introduction to Statistical Thermodynamics | 3 |
| PHYS413 | Electricity and Magnetism II (Electricity & Magnetism II) | 3 |
| PHYS474 | Computational Physics | 3 |
| PHYS456 | Making Physics Experiments | 3 |
| One of the following: | | 3 |
| PHYS485 | Electronic Circuits | |
| PHYS487 | (Computerized Instrumentation) | |
| PHYS4XY - Any Approved 400-level PHYS Elective | | 3-4 |
| **Total Credits** | | **34-35** |

# Social Data Science Major

***Under*** Social Data Science Major (INFO) ***(***p. 446***) and*** Social Data Science Major (BSOS) ***(***p. 283***)***

- Effective Fall 2024, the Program Director was updated *(published August 27, 2024)*.

### Original

**Program Directors:** Brian Kim, Ph.D. and Katie Shilton, Ph.D.

### Change

**Program Director:** Brian Kim, Ph.D.
**Assistant Director:** Scott Jackson, Ph.D.

# Special Education Major

***Under*** Elementary/Middle Special Education Major ***(***p. 370***)***

- Effective Spring 2025, the general requirements were changed so that students may take HESP202 or EDSP376/CHSE376, and the Earth/Space Lab Science requirement was removed (*published January 30, 2025*).

### Original

See Elementary/Middle Special Education Major (p. 371).

### Change

| Course | Title | Credits |
|---|---|---|
| College Requirements (p. 365) | | |
| Complete the following with a B- or better: | | |
| EDSP210 | Foundations of Special Education: Inclusive Practices | 3 |
| or EDSP211 | Foundations of Special Education: Inclusive Practices | |
| Complete the following with a C- or better: | | |
| PSYC100 | Introduction to Psychology (HS or NS) [1] | 3 |
| SOCY100 | Introduction to Sociology [1] | 3 |
| or SOCY105 | Understanding Contemporary Social Problems - Frameworks for Critical Thinking and Strategies for Solutions | |
| Select one of the following: | | 3 |
| HIST200 | Interpreting American History: Beginnings to 1877 (HS or HU) [1] | |
| HIST201 | Interpreting American History: From 1865 to the Present (HS or HU and DVUP) | |
| Select one of the following: | | 3 |
| HESP202 | Introduction to Hearing and Speech Sciences | |
| EDSP/CHSE376 | Fundamentals of Sign Language | |
| Select a Physical Science with Lab [2] | | 4 |
| Select a Biological Science with Lab [2] | | 4 |
| STAT100 | Elementary Statistics and Probability (AR) [1] | 3 |
| EDHD411 | Child Growth and Development (HS) | 3 |
| or PSYC355 | Developmental Psychology | |
| MATH212 | Elements of Numbers and Operations | 3 |
| MATH213 | Elements of Geometry and Measurement | 3 |
| ENGL Literature (HU) [1] | | 3 |
| Select one of the following: | | 3 |
| TLPL360 | Foundations of Education (HS) [1] | |
| TLPL250 | Historical and Philosophical Perspectives on Education (HU) [1] | |

[1] May double count for GenEd and major requirement
[2] Students must complete one lab science from each of the following categories for a total of 2 lab sciences: (a) biological lab science and (b) physical lab science.

Professional track requirements remain the same and are not listed here.

# Technology and Information Design Major

***Under*** Technology and Information Design Major ***(***p. 449***)***

- Effective Fall 2024, the Program Director was updated *(published August 27, 2024)*.

### Original

**Program Director:** Tamara Clegg, Ph.D.

### Change

**Program Director:** Elizabeth Bonsignore

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